

JAPAN REBORN

CHAMAN LAL

This is a non-profit publication.

I am grateful to my friends who have helped
me in bringing out this beautiful book.

A reprint will be published in India.

The Author.

To

The late K. Mikimoto, popularly known as the 'Pearl King of Japan,' a pioneer inventor, a prince among Patriots, who proved that genius, hardwork and a philosophy of contentment lead to victory and peace of the soul.

*He was a philosopher and a devoted follower of the Buddha.
I found him equally happy in prosperity and poverty.*

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FRIENDS OF FOURTEEN CENTURIES

THE PRESIDENT OF INDIA GREETES JAPAN

Speaking at a public meeting in Tokyo on October 2, 1958, the president of India said:—

I am at a loss to find words to give adequate expression to my feelings of gratefulness for the very kind and cordial welcome which has been accorded to me ever since I set foot on your beautiful country. I am naturally happy but may I say that I am not surprised, knowing as I do, that the relations between our two countries are not of a recent date but are sanctified by tradition of centuries. I am conscious that this love and kindness which has been showered upon me is not for an individual, but for the country to which I have the honour to belong. The cultural ties between our two countries are at least 1300 to 1400 years old, and in modern times we have established other relationships which I am sure are of mutual benefit economically and politically.

“Personally I attach infinitely greater value to the cultural ties because they are born of mutual goodwill, understanding and friendship. They are also more lasting because they touch the inner chords in the heart of the common man in both countries. India and Japan are separated by wide seas, but in the past our mutual regard for each other manifested itself whenever historical events have provided the inspiration. And in recent times we have strengthened these ties by those of an economic and political character which both countries have accepted in their mutual interest.”

“JAPAN’S VITAL PART IN ASIA”

PRIME MINISTER NEHRU SPEAKS*

I came to Japan because I wanted to see Japan, and meet the leaders and the people here; most especially I wanted to form some idea of, should I say, the spirit of Japan today; what was moving people’s minds here. Well, it would not be proper for me to say after nine days’ stay that I know about this complicated question. But one does get impressions, and I have got many impressions.

First of all, of course, of the great vitality of the Japanese people. The way they have developed their industries is a past story, but the way they have reconstructed Japan the last ten years is a present story. Now, that is so, and I know that. It did not require a visit. But how does all this fit in with the present problems of the world? How does Japan stand in regard to these problems, above all the problems of peace, all the related problems like, well, nuclear test explosions and the like? That too, more or less, we knew.

Another aspect comes up: Japan was the first country in Asia to industrialize herself last fifty, sixty, seventy years. I was wondering how far this process of industrialization had affected what might be called the old culture of Japan, because it is bound to affect it, but to what extent I did not know.

I always felt that if a country loses its old roots, its own culture, then it loses something very precious and valuable. It loses to some extent its individuality, and that is important for an individual as for a country. How to find a balance—when it has to go ahead in a modern world, when a country can’t remain in an old world, and at the same time, when it has to, well, keep on the roots and the old culture too, how to find its balance—is a problem before any ancient country. We in India are also a very ancient

* (Broadcast over Radio Japan, N.H.K. No. 10.)

country with deep roots in the past; some of them are very good, and some of them bad, naturally. And we are in the process of industrializing ourselves very rapidly, and I am anxious that in this process we shouldn't lose our footing, if I may say so — keep firmly attached to our soil.

Now, while I see that, I realize also that a narrow nationalist outlook of a country is no longer good enough, although it is important in itself, but it is not good enough. The world moves on today to broader areas of co-operation, in effect, to what is called one world. And I wondered how far Japan was, if I may say so, narrowly nationalistic, always moving on, at the same time, to this broader conception of a world co-operation. I cannot obviously give a firm answer to that, but I have a feeling that today in the mind of Japan there are many questions being asked. These questions are occurring there, and I have no doubt some answer will be found.

I have been much affected by this welcome and by what I have seen — the tremendous artistry of Japanese people, their esthetic sense, which is the old culture. I do not speak about the industries because we all know they made a great progress, and are going to make a great progress. But I should be very sorry indeed if they lost their artistry and the esthetic sense in the process of industrial development, because I consider that very important and vital. Japan has obviously a very important part to play in Asia, and in the world, partly because in Asia, it has led in industrial rebounds and for other reasons also. I honestly trust that it will play it, not, if I may say so, in the narrow sense of looking after its own interests only, which of course it must, but in the broader sense of helping the cause of Asian solidarity and world's solidarity, because I do not conceive of Asia as hostile to the rest of the world. That is wrong, and does not fit in today's world.

So I should like to express my deep gratitude to the Government and the people of Japan for their welcome to me and the affections they have given me.

SALUTE TO JAPAN

BY POET RABINDRANATH TAGORE

I have travelled in many countries and have met with men of all classes, but never in my travels did I feel the presence of the human so distinctly as in this land. In other great countries signs of man's power loomed large, and I saw vast organizations which showed efficiency in all their features. There, display and extravagance, in address, in furniture, in costly entertainments, are startling. They seem to push you back into a corner, like a poor intruder at a feast; they are apt to make you envious, or take your breath away with amazement. There, you do not feel man as supreme; you are hurled against a stupendousness of things that alienates. But in Japan it is not the display of power, or wealth, that is the predominating element. You see everywhere emblems of love and admiration, and not mostly of ambition and greed. You see a people whose heart has come out and scattered itself in profusion in its commonest utensils of everyday life, in its social institutions, in its manners, which are carefully perfect, and in its dealings with things which are not only deft but graceful in every movement.

What has impressed me most in this country is the conviction that you have realized nature's secrets, not by methods of analytical knowledge, but by sympathy. You have known her language of lines, and music of colours, the symmetry in her irregularities, and the cadence in her freedom of movements; you have seen how she leads her immense crowds of things yet avoids all frictions; how the very conflicts in her creations break out in the dance and music; how her exuberance has the aspect of the fulness of self-abandonment, and not a mere dissipation of display. You have discovered that nature reserves her power in forms of beauty; that it is this beauty which, like a mother, nourishes all the giant forces at her breast, keeping them in active vigour, yet in repose. You have known

that energies of nature save themselves from wearing out by the rhythm of a perfect grace, and that she with the tenderness of her curved lines takes away fatigue from the world's muscles. I have felt that you have been able to assimilate these secrets into your life, and the truth which lies in the beauty of all things has passed into your souls. A mere knowledge of things can be had in a short enough time, but their spirit can only be acquired by centuries of training and self control. Dominating nature from outside is a much simpler thing than making her your own in love's delight, which is a work of true genius. Your race has shown that genius, not by acquirement, but by creation; not by display of things, but by manifestation of its own inner being. This creative power there is in all nations, and it is ever active in getting hold of men's natures and giving them a form according to its ideals. But here, in Japan, it seems to have achieved its success, and deeply sunk into the minds of all men, and permeated their muscles and nerves. Your instincts have become true, your senses keen, and your hands have acquired natural skill. The genius of Europe has given her people the power of organization, which has specially made itself manifest in politics and commerce and in co-ordinating scientific knowledge. The genius of Japan has given you the vision of beauty in nature and the power of realizing it in your life.

A particular civilization is the interpretation of particular human experience. Europe seems to have felt emphatically the conflict of things in the universe, which can only be brought under control by conquest. Therefore she is ever ready for fight, and the best portion of her attention is occupied in organizing forces. But Japan has felt, in her world, the touch of some presence, which has evoked in her soul a feeling of reverent adoration. She does not boast of her mastery of nature, but to her she brings, with infinite care and joy, her offerings of love. Her relationship with the world is the deeper relationship of heart. This spiritual bond of love she has established with the hills of her country, with the sea and the streams, with the forests in all their flowery moods and varied physiognomy of branches; she has taken into her heart all the rustling whispers and sighing of the woodlands and sobbing of the waves; the sun and the moon she has studied in all the modulations of their lights and shades and she is glad to close her shops to greet the seasons in her orchards and gardens and cornfields. This opening of the heart to the soul of the world is not confined

to a section of your privileged classes, it is not the forced product of exotic culture, but it belongs to all your men and women of all conditions. This experience of your soul, in meeting a personality in the heart of the world, has been embodied in your civilization. It is a civilization of human relationship. Your duty towards your state has naturally assumed the character of filial duty, your nation becoming one family with your Emperor as its head. Your national unity has not been evolved from the comradeship of arms for defensive and offensive purpose, or from partnership in raiding adventures, dividing among each member the danger and spoils of robbery. It is not an outcome of the necessity of organization for some ulterior purpose, but it is an extension of the family and the obligations of the heart in a wide field of space and time. The ideal of "maitri" is at the bottom of your culture, — "Matri" is with men and "maitri" with Nature. And the true expression of this love is the language of beauty, which is so abundantly universal in this land. This is the reason why a stranger, like myself, instead of feeling envy or humiliation before these manifestations of beauty, these creations of love, feels a readiness to participate in the joy and glory of such revelation of the human heart.

And this has made me all the more apprehensive of the change which threatens Japanese civilization, as something like a menace to one's own person. For the huge heterogeneity of the modern age, whose only common bond is usefulness, is nowhere so pitifully exposed against the dignity and hidden power of reticent beauty as in Japan.

But the danger lies in this, that organized ugliness storms the mind and carries the day by its mass, by its aggressive persistence, by its power of mockery directed against the deeper sentiments of hearts. Its harsh obtrusiveness makes it forcibly visible to us, overcoming our senses, — and we bring sacrifices to its altar, as does a savage to the fetish which appears powerful because of its hideousness. Therefore its rivalry with things that are modest and profound and have the subtle delicacy of life, is to be dreaded.

I am quite sure that there are men in your country who are not in sympathy with your inherited ideals; whose object is to gain, and not to grow. They are loud in their boast that they have modernized Japan. While I agree with them so far as to say that the spirit of the race should harmonize with the spirit of the time, I must warn them that modernizing is a mere affectation of mod-

ernism, just as affectation of poesy is poetizing. It is nothing but mimicry, only affection is louder than the original, and it is too literal. One must bear in mind that those who have the true modern spirit need not modernize, just as those who are truly brave are not braggarts. Modernism is not in the dress of the Europeans; or in the hideous structures, where their children are interned when they take their lesson; or in the square houses with flat, straight wall-surfaces, pierced with parallel lines of windows, where these people are caged in their lifetime; certainly modernism is not in their ladies' bonnets, carrying on them loads of incongruities. These are not modern, but merely European. True modernism is freedom of mind, not slavery of taste. It is independence of thought and action, not tutelage under European schoolmasters. It is science, but not its wrong application in life, a mere imitation of our science teachers who reduce it into a superstition, absurdly invoking its aid for all impossible purposes.

ANCIENT BONDS OF FRIENDSHIP

I cannot but bring to your mind those days when the whole of Eastern Asia from Burma to Japan was united with India in the closest tie of friendship, the only natural tie which can exist between nations. There was a living communication of hearts, a nervous system evolved through which messages ran between us about the deepest needs of humanity. We did not stand in fear of each other, we had not to arm ourselves to keep each other in check; our relation was not that of self-interest, of exploration and spoliation of each other's pockets; ideas and ideals were exchanged, gifts of the highest love were offered and received; no difference of languages and customs hindered us in approaching each other heart to heart; no pride of race or insolent consciousness of superiority, physical or mental, marred our relation; our arts and literatures put forth new leaves and flowers under the influence of this sunlight of united hearts; and races belonging to different lands and languages and histories acknowledged the highest unity of man and the deepest bond of love. (India and Japan — Friends of Fourteen Centuries. — By Chaman Lal, 1959)*

* Available from Bharatiya Vidya Bhavan, Chaupati Road, Bombay, 7.

PREFACE

Fifteen years ago Japan was sleeping under a blanket of death and defeat. The nation was in ruins. Fire bombs had reduced cities to ashes, 80 percent ships lay at the bottom of the ocean, people were starving, but there was no humiliation, no sorrow. None talked of the gloomy past. All were interested in the future. I found that dignity had not left Japan in defeat. They gracefully accepted defeat and said 'It can't be helped' — They seemed to be bowing before the Buddhist law of Karma — action and re-action. It reminded me of the German saying "If this must be so, let it be so".

Only future historians will decide the issue as to whether Japan declared the war or she was dragged into it but she paid a heavy bill for entering war. I had, as an old friend, strongly opposed Japan's war on china in 1938.

BILL OF WAR

Shrunk Japan lost the following amongst other tings:

Loss of territory in area 43%

Korea — Rice, minerals, metals, ore, fertilizer

Formosa — Sugar, rice, salt

Saghalien — Coking coal, petroleum, timber, pulp, paper

Loss of spheres of influence

Manchuria — Gas coal, pigiron, steel, soyabean, cereals, and salt

Direct Loss of damages in Japan

Production facilities

and Equipment damage 30%

Indirect Loss and damage

Evacuation, Scrapping,

Removal to overseas,

Conversion to War industries 10%

Total..... 40% of total equipment.

Loss of Movable
Commodities

25% of Total Movable
Commodities.

It means roughly speaking that Japan has shrunk 40% in area and lost 40% surface capital and underground resources in addition to 25% of all movables.

MIRACLE OF JAPAN

German recovery was a miracle but Japan's rebirth is a greater miracle. Twelve years ago Japan was still cleaning up the debris of defeat and the sons of the soil were treated as untouchables by a section of victors. Even the highest Japanese official was not permitted to be served with a glass of water in a hotel run by an allied nation in Tokyo. Today everyone vies with each other in shaking hands with Japan, because Japan has earned that respect and dignity by hardwork. The Japanese people are 25% better off than they were before the war. Her industrial growth has risen three times and even more in some industries. Her national income is the highest in Asia and her people are best fed and best clothed. Nearly every Japanese family owns a radio. More newspapers are sold per capita than in the U. S. A. Prosperity reveals itself in the ever-increasing expenses on weddings. A coat worn over the wedding Kimono (coat) is being displayed in a store. It costs 450,000 yen nearly six thousand rupees.

LOVE, LIFE AND LAUGHTER

Evidence of Japan's prosperity is available in the manner the Japanese enjoy their leisure. The Japan Times, a leading paper, published a special 'Pleasure supplement' last month and I present some extracts to the reader.

Families, too, are enjoying, more than ever, simple pleasures. Attendance of family groups at parks and zoos has increased tremendously.

The spacious Hama Rikyu Park in downtown Tokyo, practically abandoned after the war, now hums with the happy voices of tots and their mero-carefree-than-ever parents.

New zoos are established and old ones become more resplendent —jammed with visitors of all ages.

Commercialized amusement centers like those at Korakuen, Toshima-en and Seibuen, which cater to the youngsters, are jammed with large and small groups enjoying a happy outing.

Beaches are crowded now more than ever, their attendance in no way affected by the increasing number and popularity of health centers, which provide year-round facilities. At these centers, located on the outskirts of, or not far from metropolitan centers, facilities are available outdoors, weather permitting, for wading and swimming, and indoors, at all times, public baths, which are enjoyed in no country in the world as much as in Japan.

POOR MAN'S PLEASURES

Other favorite rendezvous for those Japanese who seek poor man's pleasures are the department stores. Here are bargains at ridiculously low prices, a trade fair of just about every commodity that is available anywhere in Japan, and, for the have-nots, magnificent displays of the luxury items they dream about: a sort of seventh heaven.

Many of the large department stores erect breath-taking displays in their spacious many-storied central areas; all of them provide roofside recreation for youngsters; and all of them also serve as museums, art galleries and exhibition halls, varying their fare from the drawings of primary school children to the thousand-year-old art treasures of the world. — All this free, or for a nominal charge every employed person can afford to pay.

Most encouraging, and most pronounced among Japan's poorman's pleasures, is, of course, the honored and ancient pastime of reading. Japan has one of the highest literacy rates in the world, and its per capita consumption of reading matter, undoubtedly, will prove to be the highest in the world, once the almost-all-inclusive United Nations Statistical Yearbook includes such statistics.

In the Kanda area of Tokyo, where the world's greatest concentration of bookstores is located, sales now are at an all-time high.

JUVENILE CRIMES

In this book I have presented only the bright side of 'Japan Reborn' but I shall be failing in my duty as a friend of Japan if I don't utter a serious warning on the subject of ever-increasing Juvenile Crimes, some of which were never heard of in pre-war Japan. I am quoting extracts from an article in a leading Japanese paper, the Yomiuri:—

Japan is no exception to other industrial nations of the world in that the number of sex crimes committed by minors has been

steadily increasing after the last war.

According to the Police Agency, the number of crimes committed by minors began declining after reaching the peak in 1951 although it again began increasing from 1955.

But in the case of the number of sex crimes committed by minors, it kept on rising steadily since it took the upward trend in 1948.

Especially, the number of such crimes for the year 1957 showed an increase of 35 per cent, against the previous year.

The figure for the year 1958, the Police Agency expects, will also show a marked increase, judging from reports now coming from local police authorities.

To divide the total number of 3,554 sex crimes committed by minors in 1957 into two groups, 2,865 were arrested for raping, while 689 were arrested for obscenity.

Minors, for the sake of convenience, are generally divided into four groups: those under 14, those 14 and 15, between 16 and 18 and those 19 and 20.

In the case of both raping and obscenity, those between 16 and 18 claim the largest numbers — 1,349 for raping and 213 for obscenity.

Also in the case of those minors in this age group, who were taken into protective custody by police, but not arrested, account for the largest number for luring girls.

According to police officer Yasuhei Hayashi of the Crime Prevention Section, Police Agency, who is in charge of minors, far more sex crimes by minors occur in larger cities.

This, he said, is because there are too many things which excite young boys and girls in larger cities.

The real culprits are those who run gambling houses night clubs and sexy films. I hope the Buddhist prime minister will soon carry out his plan of moral education in schools.

GODS DAMAGED

The youth have not spared gods, a Mainichi report says:—

Another of Japan's national treasures, the "Nio-san" at the Horyuji temple in Nara is in danger of ruination due to boys throwing spitballs at the wooden statue, one of two Deva Kings guarding the temple.

Coming in the wake of an amorous university student who

broke a finger off one of the hands of "Miroku Bosatsu" (Maitreya), god of mercy and blessing, at Kyoto's Koryuji temple, when he accidentally brushed against it while kissing the statue, authorities concerned are worried about the repeated damaging actions against Japan's national treasures.

There is an old saying in Japan that throwing spitballs at Deva Kings, noted for their superhuman strength, would make one healthy and strong. Many of the boys, however now are even throwing chewing gums at the statue, apparently thinking this modern "spitball" would be just as effective.

As a result, not only the poor "Nio-san" is covered with "spots" but this constant throwing of spitballs and chewing gums is attracting worms and insects which are eating into the statue. One of its arms has been almost eaten through.

NOT ALL ROSES

Post-war Japan is 'not all roses', it has many a thorn too, which an old friend is pained to see.

Post-war Japan has undergone tremendous changes in social and home life. Night clubs are more popular than Geisha houses. Kimono-artistic national dress of Japan — is almost replaced by European dress. Pony tails have ousted pigtails. I must say I have seen more artistic pony tails in Japan than in any other country. Bear and whisky are replacing the humble Sake (rice wine). Artificial blondes are the most un-artistic product of post-war Japan. They simply do not fit in with the charm and beauty of Japanese girls. I asked a Japanese television star why she had dyed her hair in the gold color and she replied "I do not like it but the television company insists on dyeing my hair because they say "It looks beautiful on the television"

IMMORTAL SOUL OF JAPAN

In my last book 'India and Japan', I wrote:—

I laugh at the casual remarks by visitors that Japan is perfectly Americanised and that the old Japan is dead. Do not judge Japan by the two piece suit of the busy working woman and other changes on the surface. Go to the Meiji Shrine and the temple of Kannon Sama (Arya-Avalokiteswara) in Tokyo if you want to see real Japan. True Japan is not to be seen in the ginza and the night clubs.

At home the suits and skirts are replaced by comfortable Kimonos. Pony

tails may replace pigtails and convenient and cheap western dresses may be popular but the soul of Japan remains immortal. It never changes. As long as Japan can preserve her Buddhist culture nothing can harm Japan including the Jazz and the chewing gum.

New Japan shall march hand in hand with all peace-loving nations and ugly influences of occupation will die their natural death. The soul of Japan will be reborn, I have no doubt on the subject.

GREATEST LESSON

The greatest lesson that we can learn from Japan is how she has nearly wiped out her rice shortage in the last six years by successive bumper crops. In ten years the yield per acre has been doubled and this year's rice import shall be limited to only about 150,000 tons, not to supplement domestic supply but only for trade purposes. It is an other great miracle like her miracle in industrial recovery.

This is the season for climbing Fuji Yama. The Japanese are not only climbing mountains, they are also climbing the mountain of survival in their country of "Too many People, Too Little Land" and I wish them Banzai.

5th November, 1960.

Chaman Lal

CHAPTER I

MIRACLE OF JAPAN

Defeated in war, stripped of colonies, never rich in resources, Japan has re-emerged as the foremost industrial power in Asia. And precisely because that re-emergence is no longer subject to question, Japan has become the focus for every important problem.—The Life.

My countrymen and especially the industrial community have always wondered at the "Miracle of Japan" and have often asked me how is it that Japan has managed to stage a come-back so soon after the disastrous war that lasted for nine years.

The people of Japan are not superior to us physically and intellectually. A Japanese cannot count hundred without the help of an instrument. His eye-sight is weak due to incessant smoking. An Indian is no less brainy than an average Japanese. Then how is it that Japan, an unknown island until a century ago, has beaten us in technical education, industries, commerce, shipping and general developments? There must be some secret behind all this strength. My seven years stay in Japan and study of the Japanese people reveals the following secrets:—

- 1) Spirit of victory (NO one laments, they just go ahead to victory).
- 2) Self help and hardwork
- 3) Mass Literacy
- 4) Love for nature
- 5) Co-operation
- 6) Honor above life
- 7) Wonderful press
- 8) Casteless society
- 9) Dignity of labor
- 10) Sharing profits with workers

- 11) Self-sacrificing women
- 12) Cheap Electricity
- 13) Technical education
- 14) Discipline
- 15) Country is their religion
- 16) Good citizens
- 17) They waste nothing
- 18) Benevolent Government
- 19) Simple life.
- 20) Love for labor.

21) And of Course not the least important factor was American occupation. Whatever the motives of American policy, no one can deny that if Japan were occupied by another nation her recovery would have been very slow.

SPIRIT OF JAPAN

If you want to know the real secret of Japan's survival you must know the spirit of Japan, which can make the souls of the dead serve their country. The following true story is related by an American writer:—

In battle, spirit surmounted even the physical fact of death. One broadcast described a hero-pilot and the miracle of his conquest of death.

After the air battles were over, the Japanese planes returned to their base in small formations of three or four. A Captain was in one of the first planes to return. After alighting from his plane, he stood on the ground and gazed into the sky through binoculars. As his men returned, he counted. He looked rather pale, but he was quite steady. After the last plane returned he made out a report and proceeded to Headquarters. At Headquarters he made his report to the Commanding Officer. As soon as he had finished his report, however, he suddenly dropped to the ground. The officers on the spot rushed to give assistance but alas, he was dead. On examining his body it was found that it was already cold, and he had a bullet wound in his chest, which had proved fatal. It is impossible for the body of a newly-dead person to be cold. Nevertheless the body of the dead captain was as cold as ice. The Captain must have been dead before long, and it was his spirit that made the report. Such a miraculous fact must have been achieved by the strict sense of responsibility that the dead captain possessed.

"To Americans, of course, this is an outrageous yarn but educated Japanese did not laugh at the broadcast. They felt sure it would not be taken as a tall tale by listeners in Japan. First they pointed out that the broadcaster has truthfully said that captain's feat was 'a miraculous fact'. But why not? The soul could be trained; obviously the captain was a past master of self-discipline. If all Japan knew that 'a composed spirit could last a thousand years,' could it not last a few hours in the body of an air-force captain who had made 'responsibility' the central law of his whole life? The Japanese believed that technical disciplines could be used to enable a man to make his spirit supreme. The captain had learned and profited."¹

SPIRIT OF VICTORY

The greatest factor that has contributed to the survival of Japan so soon after the war is her "Spirit of Victory", of which our Prime Minister often speaks in his address to the youth of India. I have visited Japan several times before and after the war and made friends in all parts of the country. When I visited first time after the termination of last war in 1948 I met hundreds of old friends, everyone of whom had lost a relative or two in the war. Most of them had lost their homes and all their property, but not one complained of his losses or bemoaned the death of his dear ones, instead everyone inquired about the (O. C. L.) open general licence and the prospects of export of their products to India.

I witnessed a unique exhibition of the spirit of victory at Yokohama. One of the first post war luxury liners carrying rich American tourists had berthed at the pier, and Japanese women and boys were selling souvenir stamps of the last war bearing the words "Pearl Harbour Victory" and "Singapore Victory". The readers will remember how Japan had given surprising blows to both the U. S. A and Britain at Pearl Harbour and Singapore in the early days of war. Only a Japanese could sell victory stamps to the conquerors and occupiers of Japan.

Such is their spirit of victory!

REBIRTH OF HIROSHIMA

I witnessed the same spirit of victory in Hiroshima which was

¹ Chryanthamum And The Sword, pp. 25.

completely paralised by the Atom Bomb. 210,000 residents of the city had lost their lives and the city itself had been reduced to ashes. The scientists had told us that the land is radio-active and may not be fit for rehabilitation. But I was surprised to see that a new city had sprung up on the seven rivers of Hiroshima. I witnessed double storied buildings, cinema houses, restaurants and even a full fledged industrial museum exhibiting the manufactures of Post-War Hiroshima. The city was full of colourful scenes and happy crowds. I was amazed to learn that Hiroshima had manufactured four billion sewing needles that year and exported a billion to India. There are five thousand women working in the needle factories of Hiroshima.

PROFIT OUT OF ATOM BOMB¹

How the Japanese convert their misfortune to profit will be evident to you from the photograph of a hand-bill being distributed by a dealer in china-ware. He has named his shop the "Atomic China-Ware Shop" and claims rightly or wrongly the clay used in his wares comes from the centre where the Atom Bomb fell. The Hand-bill is just one instance of their genius to convert misfortune into profit. I found such sign boards as "Atomic Book Shop", "Atomic Radio House", "Atomic Picture Gallery", etc. etc. The most profitable business born out of the Atom Bomb is the manufacture of a million souvenir boxes containing pieces of stone, tiles etc. picked up from the centre of atomic explosion. These boxes are being sold to American tourists at 5 dollars a piece. Every American civilian or a military man carries several boxes home to show his people the souvenir of an unchristian deed.

SELF HELP

Post war Hiroshima, indeed the whole of postwar Japan, is a living proof of the peoples' trait of selfhelp. I visited the mayor of Hiroshima and he returned the call at my hotel, and we had nearly two hours discussion on the ruin and rehabilitation of Hiro-

¹ I reproduce the text:—

This Chinaware is manufactured by a process known as "Miyajima-Yaki" which has been handed down for generations. Soil obtained from Atom bomb centre was used.

The Atomic Robot Man, a product of bomb stricken Hiroshima is selling by thousands. The manufacturers have not forgotten to print on all four sides of the cardboard box:

"Apply for patent No. 210, Japan 1949".

shima. I asked him how they had been able to rebuild Hiroshima so quickly. Mayor Hamada replied that the official rebuilding plan of Hiroshima was preserved in a book and would be only given practical shape when large funds are available, but the people from the neighbouring towns and villages had rebuilt their temporary city of Hiroshima by their own labor and capital.

CITY BUILT IN TEN MONTHS

A similar story of self-help was witnessed by me in Fukui, a city in central Japan which had seventytwo per cent of Japanese silk industry. The city was reduced to ashes in July 1948 as a result of a very disastrous fire following a tremendous earthquake. Nobody expected the city of two lakhs souls to be rebuilt in a short period, but to my surprise after only ten months I found the whole city rebuilt with better factories, higher schools and a modern town hall.

During my next visit to Japan in the month of May, 1949, I asked the mayor of Fukui with what magic hands did they rebuild the large city in ten months. The mayor replied "the simple magic consists of self-help and the spirit of co-operation exhibited by the citizens of Fukui". If Fukui were a city in India, I am sure it would have taken at least ten years to rebuild that city, because we believe more in criticism and idle talks than in self-help and solid work. The mayor of Fukui told me that two days after the earthquake they had mobilised all young men and women above the age of fourteen as volunteers and put everyone to work on a simple rations of rice, some vegetables, bean-soup and an occasional ounce of fish.

SEVEN MILLION REHABILITATED

Few people in India are aware of the fact that Japan too had seven million refugees (repatriates returning from Manchuria, Korea, Formosa, Malaya and other countries) to rehabilitate after the war. It must be said to the credit of the people of Japan that everyone of the seven million repatriates has been rehabilitated, provided home and a job. I found no Japanese rotting on foot-paths or at railway stations. None was begging for livelihood and no one was in rags. For sometimes there was unemployment, but family system took care of most of the unemployed. The Government of Japan hardly paid about Rs. 150 per repatriate.

The rest was accomplished by the heroic women and spirited daughters and young men of Japan, who organised societies in every corner of the country with their headquarters in every town hall. These voluntary workers visited every factory, shop and home and were able to collect millions of blankets, bedsheets, towels, quilts, mattresses, soap-cakes, tea sets and utensils essential for a small kitchen. These donations were packed in large cardboard boxes and every repatriate was presented with a box on his return to his defeated motherland.

Can those, who criticise our government day-in and day-out for its short-comings, honestly state that they have done their duty to the refugees coming from Pakistan? How many of the Multi-millionaire merchants possessing huge bungalows and palaces offered a single room to the refugees? How many of them in fact received pugree money from their unfortunate brothers from Pakistan? I do not mean to criticise my own countrymen, but the fact remains that we lack the spirit of fellow-feeling, which has made England, Germany and Japan great nations. At a private meeting of Indian merchants in Osaka I was asked as to what was the biggest cottage industry in India. Before I could answer, a Gujarati merchant got up and said "stabbing our own brothers".

Let the reader judge for himself.

LITERACY AMONG LABOURERS

In Japan I have witnessed taxi-drivers, cooks, and ordinary laborers carrying a book in their pocket and always reading it in their leisure time. Some of them read Hindi, Urdu, Sanscrit, while most of them read English, French and German. There are several foreign-language schools in Japan and professors from various countries are invited to teach foreign languages to the people of Japan. Japanese papers have their circulations in millions and publishers and booksellers are very prosperous in Japan.

The detailed story of secrets of the Miracle of Japan is related in the following chapters.



According to the Japan Newspaper Publishers and Editors Association's statistics for April, Japan has a total newspaper circulation of 24,163,000 or one copy for every 3.69 persons in this country.

CHAPTER II

A. B. C. OF JAPAN

Japan-land of great industries and arts — is one eighth the size of India, less than one twentieth the size of the United States, one fifty eighth the size of U.S.S. R. or 1.5 times as large as the size of the United Kingdom.

Japan is an old nation whose written history dates back thousands of years. Illiteracy is almost unknown throughout the country. Ancient customs and traditions, together with the accumulated heritage of art, are well preserved in this age of man-made satellites. At the same time industrial plans are being drawn up to build huge power dams and giant ships, all to be operated by nuclear energy.

In the Japan of Today, the ancient and the modern exist side by side in a fascinating harmony, a phenomenon of great interest to travelers to the shores of the Land of the Rising Sun.

GEOGRAPHY

The Japanese archipelago, situated off the eastern edge of the Asian continent, is made up of the four main islands of Honshu, Shikoku, Kyushu and Hokkaido, in addition to thousands of smaller islets which lie adjacent to them. This territory, amounting to 369,644 sq. km. (135,000 square miles) stretches 2,400 k.m. (1,400 miles) from north to south.

Japan lost 45.5 percent of her territory as a result of World War II.

Situated in the temperate zone, the entire country is covered with abundant foliage. With its high volcanic mountains, lakes of limpid water, rivers dashing through craggy gorges and striped, neatly cultivated rice paddies and fields, the whole of Japan has the appearance of a beautiful natural park.

TOPOGRAPHY

Japan is a mountainous country. Mountains more than 2,000 meters above sea level number 250. The highest and most famous is the majestic Mt. Fuji which is a dormant volcano towering to a height of 3,773 meters (12,375 feet). Of the 192 volcanoes in Japan 58 are active.

The few extensive plains which Japan has are of great economic importance, for they support a substantial part of her population and provide much of her resources.

Japan is surrounded by the sea. The entire coast-line is 26,819 kilometers (16,500 miles) long or about twice that of the United States. Harbors, therefore, are numerous.

Japan is noted for its mild and temperate climate, known as "oceanic." The four seasons of the year are regular, and each season has distinct characteristics of its own.

Rainfall is plentiful, ranging from 1,000 to 2,500 mm. (40 to 100 inches) annually, and snow-falls are frequent and heavy in the northern parts of the country.

The population of Japan as of October 1, 1957 was 91,100,000. The density of population was 246 persons per sq. km. coming third after the Netherlands' 335 and Belgium's 291 (both figures as of 1955). In terms of population density for arable land, however, the mountainous country of Japan occupies first place.

In the world population ranking, Japan placed 5th, after Continental China's 582,600,000, India's 381,690,000, the Soviet Union's 200,000,000 and U.S.A.'s 167,190,000.

Of the 91 million people the Metropolitan Prefecture of Tokyo alone has almost one-tenth.

The six largest centers of population are:

Tokyo (Metropolitan Pref.)	8,037,000
(City area)	6,969,000
Osaka	2,547,000
Nagoya	1,336,000
Kyoto	1,210,000
Yokohama	1,143,000
Kobe	981,000

EDUCATION

The Constitution provides that all people shall have the right

to receive an equal education correspondent to their ability.

Under the Fundamental Law of Education, the so-called "6-3 education system" was established. Six years of elementary school and three years of lower secondary school are compulsory. All boys and girls are entitled to enter an upper secondary school of three years and a college or university of four years correspondent to their ability.

For those young people who cannot attend school regularly as ordinary full-time students or desire to study while holding jobs, night schools, part-time courses and education by correspondence have been established.

Nearly 4,000 foreign students from all over the world are now enrolled in Japanese universities, including 2,400 Koreans, 800 Chinese and 500 Americans. In scientific and technological institutes and factories there are also many people from Southeast Asian countries receiving technical training.

According to a recent survey the numbers of various educational institutions in Japan are as follows:

Kindergartens	6,013
Elementary Schools	22,381
Lower Secondary Schools	12,736
Upper Secondary Schools	3,331
Universities and Colleges	496
Schools for the blind and otherwise physically handicapped	172
Other schools	7,516

LAND TRANSPORTATION

Japan has a highly efficient transportation system, employing all modern land, sea and air facilities.

It is more than 80 years since Japan's first railroad, a 25 kilometer (15.5 mile) line between Tokyo and Yokohama was opened to the public. The Japanese railways have long enjoyed a high reputation for their accurate time schedules and hauling capacity.

The Japanese National Railways, the nation's largest single enterprise, with assets amounting to about \$5,000 million, operate about 35,000 kilometers of nationalized railroads, while there are 8,000 kilometers of local railways operated by 148 private enterprises.

An extensive network of modern highways is also under con-

struction.

MARITIME TRANSPORTATION

Japan's merchant fleet was the second largest in the world before the war. Wartime losses, nowever, were so heavy that the 6,397,000 tons the merchant marine possessed at the end of 1941 dropped to almost nothing. Postawr construction had brought the total volume to 3,934,000 tons by the end of 1955 and the present building program envisages a merchant fleet of 4,500,000 tons.

GOVERNMENT

The new post-war Constitution came into force on May 3, 1947. It is a democratic and peaceful instrument in letter and spirit with the sovereign power residing in the poeple.

The Emperor is loved and respected by the people as the symbol of the state and of their unity. War and the threat or use of force are forever renounced as sovereign rights of the nation.

The highest organ of state power and the sole legislative organ of the state is the Diet, Japan's parliament. Bicameral in structure, it consists of a House of Representatives and a House of Councillors. All adults, female as well as male, have the right to vote and also to run in elections for public office.

Executive power is vested in the Cabinet, which, cosisting of the Prime Minister and not more than 16 Ministers of State, is collectively responsible to the Diet. The Diet designates the Prime Minister, while the Prime Minister has the power to appoint and dismiss the Ministers of State.

Local autonomy is guaranteed by the Constitution and the country is divided into 45 prefectures under which come a number of cities, towns and villages.

For the administration of Tokyo, Japan's capital, a Metropolitan Government is organized covering an area of about 2,000 sq. km (800 sq. miles) and a population of 8,535,000. There are half a dozen other cities having a population of over one million.

NEWS AGENCIES and NEWSPAPERS

There are some 30 Japanese news agencies in Japan. The typical and largest of them all which serves daily newspapers throughout the country is the Kyodo News Agency and the Jiji Press holds the second rank.

Today Kyodo supplies news to 86 member papers with a combined circulation of 10,753,150.

There are 93 daily newspapers holding membership of Japan Newspaper Publishers and Editors Association and 83 other non-member dailies in Japan. The leading dailies are as follows:

1. The Asahi
2. The Mainichi
3. The Yomiuri
4. The Sangyo Keizai
5. The Nihon Keizai
6. The Chubu Nippon
7. The Hokkaido
8. The Nishi Nippon
9. The Tokyo
10. The Japan Times (English)
11. The Mainichi (English)
12. The Asahi Evening News (English)
13. The Yomiuri Japan News (English)

Most of the Japanese dailies mentioned above publish evening papers too. The Japan Times, The Mainichi, The Asahi Evening News and The Yomiuri Japan News are four main newspapers in English.

According to a survey of the Japanese Newspaper Publishers and Editors Association, the circulation and number of daily newspapers in 1953 and 1954 are as follows:

Circulation & Number of Daily Newspapers

Year	No. of Newspaper	Morning and Evening Combined	No. of National Population per copy
1945	57	14,179,974	5.22
1952	186	31,997,673	2.60
1953	180	34,435,424	2.42
1954	176	34,401,682	2.42

Circulations of Main Newspapers

Name of Newspapers	Morning	Evening
The Asahi	(not reported)	(not reported)
The Mainichi	4,626,498	2,918,165
The Yomiuri	2,852,422	1,883,580

The Sangyo Keizai	2,520,191	587,458
The Nihon Keizai	882,000	440,900
The Chubu Nippon	969,808	819,482
The Hokkaido	682,840	680,980
The Nishi Nippon	771,488	318,935
The Tokyo	(not reported)	820,000
The Japan Times	76,695	—

RELIGION

Shintoism, Buddhism and Christianity are generally accepted as the three major religions of Japan today.

Shintoism is Japan's indigenous cult. The Imperial ancestors as well as the family ancestors are worshipped. It is asserted in some circles that Shintoism is not actually a religion in the strict sense of the term. During World War II, however, Shintoism was regarded as a State religion and was encouraged by the Government.

The New Constitution of Japan stipulates in Article 20, that: "Freedom of religion is guaranteed to all. No religious organization shall receive any privileges from the State, nor exercise any political authority. No person shall be compelled to take part in any religious act, celebration, rites or practice. The State and its organs shall refrain from religious education or any other religious activity."

Shinto organizations operate two universities.

Buddhism was introduced into Japan from India through China and Korea around the middle of the sixth century. While contributing much to the promotion of learning and the arts, Buddhism also flourished as a religion. At present, there are 12 universities connected with Buddhist organizations. The number of believers belonging to various Buddhist sects fluctuates between 40 and 50 millions.

Christianity was brought to Japan in 1549 by St. Francis Xavier, a Jesuit Father. In the early stages of its propagation, the missionaries had difficulties but now they enjoy perfect equality and freedom.

NATIONAL BUDGET

The Japanese fiscal year begins on April 1 and ends on March 31 of the following year.

The outline of the national budget for fiscal 1958, which was drafted by the Cabinet in January and was approved by the Diet

early in April practically in its original form, is as follows:

(In Million Yen)

REVENUE:	Fiscal 1958
Taxes and Stamps	1,025,915
Monopoly	117,017
Receipts from State Enterprises and Properties	14,825
Miscellaneous	54,198
Receipts from Surplus in the Preceding Fiscal Year..	100,176
Total	1,312,131
EXPENDITURE:	
Social Security.....	125,453
Education	143,863
Promotion of Science and Technology	21,586
Government Bonds	67,200
Pensions.....	110,672
Local Government Grants.....	224,011
Defense Expenditures	146,165
Reparations and Other Obligations	24,534
Public Works	173,775
Housing and Public Health Projects	12,319
Agricultural Insurance	10,987
Trade Promotion and Economic Cooperation	2,745
Aid to Smaller Enterprises	3,146
Funds for Strengthening Economic Foundation	43,680
Reserves	8,000
Miscellaneous	192,045
Total	1,312,131

LABOR

In September, 1957, the labor force in Japan totalled 43.6 million, of which 25.7 million were males.

A breakdown by industries of the employed population, as of September, 1957, follows: (unit, 1,000 persons)

Agriculture & forestry	16,530
Fisheries	660
Mining	600
Construction	2,010
Manufacturing	8,110
Wholesale, retail, financing, insurance,	

& real estate.....	7,450
Transportation, communications & public utilities	2,150
Service	4,990
Civil Service	1,120
Unclassified	10
Total	43,630

In Japan the rate of unemployment has been about 11/2 percent in recent years. In September 1957, the official number of the unemployed stood at 480,000. It should not be forgotten, however, that there is always a large latent unemployed or "under-employed" population in Japan which is not recorded in labor statistics.

Without the rehabilitation and expansion of industry, it would hardly be possible to provide employment for the existing unemployed, visible and latent alike. The Government, therefore, is taking a serious view of this problem and is presently administering a five-year economic plan.

TRADE UNIONS

In recent years Japan's labor movement has developed remarkably, particularly since the enactment of the Trade Union Law in 1946. Listed below is the membership of various labor organizations in 1957:

<i>Sobyo</i> (Japan General Council of Trade Unions)	3,130,000
<i>Zenro</i> (All Japan Trade Union Council)	758,000
<i>Shin San-Betsu</i> (National Federation of Industrial Organizations)	37,000
<i>San-Betsu</i> (All Japan Congress of Industrial Unions).....	11,000
Neutral or independent unions	1,150,000

The major trade unions in Japan are affiliated either with *Shoyo* or *Zenro*. The principal members of *Shoyo* are public workers' unions, such as the All-Japan Government and Public Workers' Union with a membership of 2,424,000, National Railways Workers' Union and Japan Teachers' Union. On the other hand, *Zenro* is composed of trade unions in private industries, such as the National Federation of Textile Workers' Union and the Japan Seamen's Union.

Japan's postwar agrarian movement has been characterized by

splits and rivalries among the farmers' unions. Early in January, 1958, however, several farmers' organizations agreed to merge into a single association in order to strengthen the agrarian front.

Parallel with the intensification of the labor movement in Japan during the postwar years, a conspicuous improvement in working conditions has been witnessed.

SOCIAL SECURITY

There was a tremendous increase in the number of persons seeking social aid and medical services in the early postwar years. National concern over improvement in the social security system is steadily mounting.

SPORTS

Both traditional and modern sports have a tremendously large following.

In the field of traditional sports, *Sumo* (Japanese wrestling), *Judo* (otherwise known as *Jujutsu*) and *Kendo* (Japanese fencing) are especially popular.

The beginnings of *Sumo* are lost in the mists of antiquity, but in legend, the sport goes back well over two thousand years. It has had its ups and downs in popularity all through the ages, but its nationwide appeal has been boosted since the popularization of radio and television. Professional *Sumo* wrestlers go on provincial tours all the year round and stage six annual regular tournaments in the main cities.

Judo is fast becoming a popular sport for self-defense not only in Japan but also in America and Europe where various associations have been organized to promote further popularization. The first international *Judo* championship meet was held in Tokyo in 1956, and was participated in by *Judo* experts from several countries. This is a national sport that has become popular among foreign residents in Japan.

Almost every form of western athletics has been adopted in Japan since the end of the last century. Japan has not only dispatched athletic teams to many overseas sports meetings, including the Olympic Games, but has also invited many foreign teams and sponsored international meetings.

Baseball and swimming are among the most popular sports in Japan.

KOYASAN—ABODE OF GODS

Oh! For the calmness of Koya-san!
 For a leisurely walk in Okuno-in!
 That divine presence of the dead Daimyos!
 That serene silence of the Samurai souls!
 Those tall trees offering oblation to their Masters!
 Those stony monuments of the martyrs
 Bridging the gulf between the past and the present!
 Those engraved epitaphs endeavouring to speak!
 Those statues sitting in adoration of the Infinite
 Practising penance with untiring patience!
 Their fleshy forms have gone
 But they shine like stars in the firmament of Time
 And guide the tired travellers on the road of Revelation!
 Salutation to you from your Asiatic brother! You God-like heroes
 in heavens!
 Arise and awake from those graves, for they cannot contain you
 And spread your benign benevolence to your living generations.
 Your haunting presence pounces upon my memory
 And the mist of momentary is melted into Eternity.
 Oh! For the music of meditation in that secluded
 Cemetery of souls longing for liberation,
 To hear the silent symphony of the Sutras
 For unfolding the layers of the sensual being
 To master the mechanism of matter and attain Enlightenment.
 Daiji-in! That saffron-coloured structure of imposing appearance!
 That aged abbot sitting cross-legged in white robes,
 Throwing mystic sticks into the sacred fire, emitting flames of faith
 And chanting aphorisms with strokes of will
 In accompaniment with the pupils of priesthood:
 That family invoking the aid of divinity by incantation!
 And the reverberating rhythm ringing
 Through those stately colonnades standing defiantly supporting the
 typical Tower.
 The whole setting solemnly impressed my emotion
 And infused the atmosphere with intense immensity of the occasion.

M. J. Patel

CHAPTER III

TOO MANY PEOPLE—TOO LITTLE LAND

And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: Genesis — Chapter 1, verse 28.

* * * *

Everywhere in Japan people are declaring: "Our village is overpopulated. The arable land is so limited that we have hardly any room. There are no steady jobs in the villages for our excess population. It is even more difficult to find work in the devastated cities. What shall we do?" — S. Miyake in JITSUGYO NO NIPPON.

The idea of a natural right to expansion is less dangerous than the idea of a man-made right of refusing to recognise that right — Isoshi Asahi.

When this world was born, God's own land was no one's exclusive preserve. The Vedas, the Bible and other religious books exhort people to multiply and replenish the earth. The Japanese followed these teachings literally and the result was a disastrous war, which has made their problem still more acute. Their complaint was that they have too many people but too little land, while Canada, Australia, the U.S.A. and many other countries have millions of acres of vacant land with too few people to cultivate them.

JAPAN TOPS THE LIST

According to Isoshi Asahi, the density of population in Japan is the greatest in the world. The area of Japan is 147,651 square miles, a little larger than the United Kingdom, but smaller than the State of California and less than half the size of New South Wales. People often fall into the error of discussing population by

comparing the average number of inhabitants per square mile. The Netherlands and Belgium are usually cited as examples of densely populated countries which are not troubled by the population problem. It is true, says Asahi, that the population per square mile of surface area of land is larger in these countries than in Japan. But it must not be overlooked that both of them have colonies larger than themselves. Further, in Belgium 40 per cent and in the Netherlands 30 per cent of the surface area are tilled, while in Japan only 16 per cent is under cultivation. Japan is a volcanic country, five-sixths of which is not cultivable. The defunct League of Nations gave out the following figures of population on arable land per square mile in densely populated countries:—

Japan	2,774
Britain	2,170
Belgium	1,709
Italy	819
Germany	806
France	467
U. S. A.	229

POPULATION DOUBLED

The following table presents the problem of Japan's ever-increasing population. Every hour brings more than a thousand Japanese into their already crowded islands.

<i>Year.</i> ¹	
1888.....	39,600,000
1920.....	55,963,000
1925.....	59,736,000
1930.....	64,450,000
1935.....	69,254,000
1948.....	80,000,000
	(approximately)

There is every danger of this population increasing every year at the rate of a million more hungry mouths to feed. This is evident from the following table of births and deaths:—

¹ Statistical Year Book of the League of Nations, 1937-38 (now the population has risen above 90 million). Current estimates assume it will reach 100 million by 1968.

Countries	Birth and Death Rates	
	Births per 1,000	Deaths per 1,000
Japan	31.5 (1936)	17.4 (1936)
U. S. A.	17.1 (1934)	11.0 (1934)
Germany	18.9 („)	11.8 („)
Italy	23.3 („)	13.9 („)
England	15.2 („)	12.0 („)
France	15.3 („)	15.7 („)

LET FIGURES SPEAK

The following table gives population per hectare of tilled land in various countries in order of density:—

Country.	Population (in thousands).	Tilled Land (in thousand hectares).	Percentage of tilled land to total Area	Population per hectare of tilled land persons
Japan	70,500	5,988	16%	11.7
United Kingdom	47,098	5,285	22%	8.9
Netherlands	8,557	968	29%	8.8
Indonesia	66,400	7,744	4%	8.5
Switzerland	4,174	501	12%	8.3
Belgium	8,331	1,221	40%	6.8
Germany	67,587	20,412	44%	3.3
Italy	42,677	12,835	41%	3.3
India (United)	374,200	126,646	27%	2.9
France	41,910	21,445	39%	1.9
U. S. A.	128,840	116,037	15%	1.1
U. S. S. R.	175,500	223,916	11%	0.7

GENEVA INQUIRY

The Director of the International Labour Office, Geneva said in 1938¹ :—

Already the populations of China, India, Japan and Java are in excess of their available resources, if measured by any Western standard of life. The further increase which is bound to occur over the next twenty years can only be met by intensive measures to

¹ Problems of Industry in the East, by Harold Butler, Geneva, 1938, p. 67.

increase the yield of the land, to colonise unsettled areas, to exploit undeveloped resources and to enhance industrial production. In Japan, for instance, it is estimated that work and wages will have to be found for 400,000 additional workers every year between 1950 and 1960. There is no room for these nine or ten million extra people and their dependants on the land. Already in 1930 every hectare of tilled land in Japan supported 11 persons as compared to 8.7 in the Netherlands and 3 in Italy.

The fifth conference of the Institute of Pacific Relations held at Banff in Canada also came to the same conclusion and stated¹ :—

The immediate problem faced by the Japanese leaders is to provide for ten million who will have been added to the adult population by 1955. There is no way of avoiding this question. The boys who will form the working population are already born, and will come into the labour market each year at the rate of 200,000 or 250,000 in excess of the older men who withdraw. Birth control will not control this part of the population problem. Nor is it simply a problem of keeping these additional souls alive. What Japan must do is to find a way to absorb them without sacrificing any of the improvements she hopes to effect in her present standards of comfort.

OXFORD PROFESSOR'S VIEW

Professor W. R. Crocker in his book "The Japanese Population Problem" writes (p. 205):—

In consequence we are to expect that it will be twenty or thirty or more years hence before a pronounced turn towards a stationary level is made, and that at least 15 to 20 million persons will be added to the present numbers before then.

Within the next generation then, some 15 to 20 million (or more) additional individuals will have to be fed and clothed. The Japanese economic system is already embarrassed by the size of the population it now supports. Can it be made to support an increase of this magnitude?

WANTED MORE LAND

The United Nations must find land for the overcrowded people of Japan and other countries. Unfortunately all vacant lands are

¹ Problems of the Pacific, 1933, p. 122.

in the possession of Christian nations who do not believe in sharing these lands with non-Christians. Even if the Japanese embrace Christianity, advocates of 'White Canada' and 'White Australia' will not permit them to share these lands with them. This is how the Japanese feel on the subject¹:—

Look at what the so-called followers of Christ are doing in Europe and America. They just 'have and hold', to the exclusion of other peoples, Nature's gifts to mankind as if it were to them alone that God had said, "*Be fruitful and multiply, and replenish the earth, and subdue it.*" They behave themselves as if the world belonged to them. Christ's main teaching, the doctrine of the Kingdom of God, plays so small a part in Christian creeds! With them, God's universal fatherhood and the brotherhood of all mankind have no place in this world, except in the Bible. Should the Kingdom of Heaven not be of this world? How do they differ from the Pharisees when they honour God with their lips alone?"

WESTERN RACIAL PREJUDICES

Commenting on the racial arrogance of some people in the West the same Japanese writer says:—

"The West seems to have an ineradicable attachment for the system of classifying the people of the world into two separate and distinct categories, each opposing the other. Christians and pagans; tyranny and freedom; democracy and totalitarianism; fascism and liberalism; capitalism and communism; idealism and materialism; peace and war; the Jews and Gentiles. According to this system of classification the one is always bad or wrong, while the other is always good or right. But are the peoples of the world, their creeds, their political systems and manner of thinking so simple as to admit of such clear-cut distinctions into good and bad? Those people who like any of these simple classifications seldom reflect that they are simply glorifying their own people, institutions and manner of thinking and minimising the righteousness of other creeds and other races — a tendency which Jesus scorned. This is the tendency which forms the greatest obstacle to true peace or harmony of this world.

WANTED KINGDOM OF HEAVEN

"Had these so-called followers of Christ honoured Him by

¹ Isoshi Asahi, *Economic Strength of Japan*, pp. 281-83.

deeds, not by words, the Kingdom of Heaven would have been here on this earth, not in the next world. There may be many true Christians like St. Francis or Kagawa in all countries. But the saddest fact is that Christianity never yet Christianised a State", concludes Mr. Asahi.

ANALYSIS OF POPULATION FIGURES

Japan's population has increased by 2.6 times during the past 85 years from 34,800,000 in 1872 to 91,000,000 in 1957. During the 12 years after World War II, it increased by 18,900,000 from the figure of 72,200,000 in 1945.

Of this postwar increase, 60 percent was registered in the first five years, up to 1950; the remaining 40 percent came during the seven years up to 1957. The big increase during the first five years was due in part to the repatriation of 6,250,000 Japanese from abroad, in contrast to the evacuation from Japan of 1,200,000 foreigners during the period under review.

A remarkable fact about Japan's population is that the rate of increase has slowed down of late.

Between 1950 and 1951, the population increased by 1.6 percent. The average annual increase before the War was 1.4 percent, whereas the ratio of increase for 1956-57 was 0.9 percent.

It is to be noted that a sharp drop in births has been in evidence since 1950, presumably because of the nationwide practice of family planning.

Births during 1956 totaled 1,600,000, which represented a decrease of 69,000 as compared with the preceding year. The birth rate for 1956 was 18.4 per 1,000 persons, while that for the preceding year was 19.4.

Deaths recorded during 1956 amounted to 724,000, or an increase of 30,000 as compared with 1955. The increase is attributed mainly to deaths taking place in the age group over 50. Japan's death rate declined steadily after the last war, but it apparently hit bottom in 1955.

The natural increase of population during 1956 was 937,600, approximately 100,000 less than in the preceding year. The rate of natural increase was 10.4 per 1,000 persons in 1956; it was 11.6 in 1955.

Life expectancy for fiscal 1956 was 63.02 years for males and 67.12 years for females.

As regards Japan's future population, recent estimates put the figure at 93 millions in 1960. Further increases were estimated to bring the figure to 96 millions in 1965 and to 99 millions in 1970. Indications are that the population is likely to pass the 100 million mark during 1970-71.

It is also estimated that during the 10 years between 1955 and 1965, the population will increase by 7,100,000. Again, it is estimated that there will be an increase of 12 millions in the age group between 15 and 59, and also an increase of 22 millions among people over 60 years of age, in contrast to an estimated decrease of 7 millions in the group under 14 years of age.

EMIGRATION

The question of overpopulation has always been a source of concern to Japan, especially since there are no effective measures that will contribute to a speedy solution of the problem.

Japanese emigration after World War II was resumed in 1952 when 29 persons left the country. In 1957, 5,028 persons emigrated, and up to that year, the total number of emigrants amounted to only 19,990. Some 15,000 of this number went to Brazil, 3,000 to Paraguay and a greater part of the remaining 2000 to central and South America.

POPULATION COUNCIL RECOMMENDS¹

In order to find a solution to the problem the Japanese Government created a Population Council within the Cabinet, by virtue of a decision made at a Cabinet meeting on April 15, 1949. This Council was organized with eighteen members selected from among scholars on the subject. The Council began its work officially on June 15. On October 28, 1949, this Council passed a Recommendation resolution, which laid stress on two points, namely:

1. How to increase Japan's capacity to absorb the rapid increase in the population of the productive age group.
2. How to readjust the prospective remarkable increase in the Japanese population in general.

In regard to measures to increase Japan's capacity to support a larger population, the Recommendation suggests the restoration and further promotion of Japan's foreign trade. With improve-

¹ Population Problems Series No. 1, The Mainichi Shimbun, Tokyo.

ment in foreign trade, it advises the preservation, better utilization, and development of Japan's natural resources, as well as increase of the economic strength of Japan by means of restoring and improving the domestic industries.

The Recommendation points out that the present agricultural population is already overtly large and concludes that Japanese agriculture has no more room for absorbing additional population. Instead it states the high desirability of a curtailment of the agricultural population. Consequently, the Recommendation seeks a solution in the development of peacetime industries and service industries to support the greater population.

A considerable amount of attention is paid to the likelihood of social uncertainty rising from the abrupt increase of population, particularly in the productive age group. It emphasizes the need to vitalize the counter measures to cope with unemployment, in order to contribute to better social stability.

In regard to population readjustment, the Recommendation considers it necessary and recommends that there is a need to educate the public so that married persons may readjust the number of births voluntarily through the practice of contraception. It recommends that appropriate measures be taken to popularize widely the idea of contraception among all social strata in the nation.

The same Recommendation urges that all health centers and eugenic marriage consultation offices and similar organs throughout the country be improved and mobilized with attention directed to the need of training of people to conduct these institutions and to teach matters connected with contraception.

It is recommended that the Government should take such measures as necessary to furnish certain classes of people (which do not have access to knowledge of contraception) with drugs and instruments for that purpose free of charge.

Such measures have to some extent been successful but the real remedy lies in the hands of nations who have millions of acres of land which can be cultivated by people of overcrowded countries.

It is surprising the United Nations has made no move in the matter. Some day it will, I am sure.



CHAPTER IV

NATURAL RESOURCES

Although Japan is a highly industrialized nation, agriculture is still a major factor in her economy. As a matter of fact, 45 per cent of her total population are on the farms.

Japan, however, lacks sufficient land suitable for cultivation. Being a group of small volcanic islands, Japan has countless hills and mountains, but very little flat, arable land.

The Japanese have to make the best possible use of their small plots of land through intensive cultivation. Every visitor to Japan is amazed at the sight of land that has been brought under cultivation, even up to the hill-tops, after many years of exhausting labor on the part of the farmers.

Even with the hill-sides being cultivated in terraces, the total land under cultivation is only about 14.8 percent (13 million acres) of the whole area of Japan. This means that the arable land available to each farmer is only about one-sixth of that available in Germany and about one-ninetieth of that available in the U.S.

Large-sized agricultural machinery is not widely used as a general rule, but farming techniques and the productivity of land are remarkably high as compared with those of other countries.

Japanese agriculture concentrates mainly on the production of rice which is the staple food of the nation. Livestock is in short supply because good pasture land is scarce. In 1954 Japan had 400,000 cattle, 1,020,000 horses, 833,000 hogs and 42 million poultry.

The primary reason why the Japanese concentrate on food crop production is that their agriculture must support a large population on what can be raised from the small area of cultivated land.

FORESTRY

Approximately two-thirds of Japan's land area is covered with forests. Wood is still the principal building material used in Japan,

although modern steel and concrete buildings are quite numerous in the cities. The forests also constitute an important source of the supply of charcoal which is indispensable as fuel and for heating Japanese houses.

Both during and after the last war, the over-felling of standing trees took place throughout the country. This has been rectified during the past several years, in accordance with a new afforestation policy which encourages selective planting of trees.

A recent survey shows that Japan's forests and grass-land cover 61 million acres, or 67 percent of the total land area. Of this total, forests cover 87.5 percent, or 53 million acres, with the amount of standing timber estimated at 722,400 million board feet.

Of the total forests and grass-land, 96.2 percent can be exploited, but so far only 61 percent has been utilized.

Of the 722,400 million board feet of standing timber, 679,200 million board feet, (94 percent), are in an exploitable area, of which 291,600 million board feet, (43 percent), are in forest lands already developed.

MINING

Japan possesses a fairly wide variety of mineral resources, but the quantity is very small. Few of them are able to supply even the nation's minimum needs.

There are approximately 30 different kinds of minerals required by the Japanese industry, of which 12 can barely meet the domestic demand. They are lead, zinc, arsenic, bismuth, pyrite, sulphur, limestone, gypsum, barite, silica, feldspar and dolomite.

Japanese coal, one of the most important minerals for industry is mainly of a lowgrade bituminous type. The domestic petroleum output can meet only 5 percent of the nation's demand.

The mineral output index, on the basis of 100 for the 1934-36 average, stood at 52.2 for 1946 and at 142.2 for 1957.

Listed below are figures for Japan's mineral production in 1946 and 1957.

	Unit	1946	1957
Gold ore	k.g.	1,326	7,509
Silver ore	k.g.	38,708	191,814
Copper ore	m/t	16,603	78,469
Lead ore	m/t	4,350	29,524
Zinc ore	m/t	21,320	123,001

Sulphur (refined)m/t	22,145	247,216
Iron ore1000m/t	555	1,087
Petroleum1000kl.	213	349
Natural gas1000m ³	35,895	176,797
Coal1000m/t	20,382	46,555

As the mineral resources available to Japan are insufficient to meet domestic requirements, the nation has to depend on foreign supplies.

ELECTRIC POWER

The proportion of houses with no electric lighting to the total number of houses in Japan is the world's lowest, namely 2 percent. A vast power transmission network reaches even the remotest corners of the country. Japan has a great hydro-electric power potential, the country being mostly mountainous and also blessed with abundant rainfall. Thus the power industry in Japan developed early, together with the development of water resources.

Industries in Japan generally rely on power supply from public enterprises but many of them operate power plants of their own.

On April, 1957, Japan had 1,867 power plants, including 1,458 hydro-electric and 409 thermal power plants. The combined total power generation capacity was 15,451,000 k.w., 9,602,000 k.w. from hydro-electric, and 5,849,000 k.w. from thermal power plants.

Electric power generated during fiscal 1956 amounted to 73,582 million k.w., of which 52,610 million k.w. came from hydro-electric and 20,922 million k.w. from thermal power stations.

Of late there has been an overall increase in power consumption in Japan.

MILLIONS FROM THE SEA

Three million persons are employed in the fishing industry in Japan and forty per cent of world's fish catch is the result of their wandering from Rangoon to Mexico and Vladivostok to Fiji in the South Sea.

Land is popularly known as Mother, but the sea is in no way less motherly as far as Japan is concerned. The great oceans from the Arctic to the Indian and from the Pacific to the Bay of Bengal have been serving the Japanese as their "pastoral lands." Japanese

are the world's greatest fish hunters. Before the war fishing was Japan's number three export industry. I have seen Japan's fishing boats from Rangoon to Mexico and from Vladivostok to Fiji and Australia during my several tours round the world. Pre-war Japan occupied first position in the export of aquatic products and world's forty per cent fish catch was secured by Japanese fishermen. The Japanese cannot afford much meat. They eat hardly one fiftieth of what the British eat but fish and rice are their daily food. They however concentrate more on exports than on their own requirements. The following official report throws light on this great national industry, the work of the fisherman.

OFFICIAL REPORT

Before the war, aquatic products ranked third in amount among all the export goods of Japan, and were valued at about 300,000,000 yen. In those days, about 40 per cent was shipped to China and the Southern regions, with dried products constituting the chief export items. To America and England were sent canned goods, which occupied 60 per cent of the total export value.

After the war, however, export conditions changed, and presented different aspects as compared with pre-war times. While canned products had been chiefly forwarded to America and Europe before the war, the production now sharply declined to one-tenth of the pre-war level resulting from loss of fisheries and acute shortage of canning materials. Supremacy in export has now been transferred to frozen goods. Thus finished products have been superseded by processed materials. Freezing of foodstuff needs various equipment to secure freshness. This is one of the greatest difficulties facing the producers.

At present, America is the biggest customer for marine products including frozen stuff. That the Chinese market is not yet fully restored is proving a serious blow to the export of Japanese aquatic products.

Being generally high-grade, export items have been costly. Moreover, with the marine product industry, a large amount of funds must be kept frozen for a certain length of time, because there is usually a long interval between collection of materials and transaction of business. This is why merchants cannot accept large orders which have been placed with them since the termination of the war. Therefore, it is strongly desired that some steps be

taken to cope with such situations.

The following are the principal marine products for export for which orders have come in successively after the war. A bright future for them can be expected.

A. Frozen Marine Products.

Canned stuff which ranked highest among exportable marine products has now been replaced by frozen articles. The tunny (Bincho Maguro) which is valued because it tastes like turkey, and other frozen products are mostly shipped to America.

Those scheduled for export in 1948 were as follows. All were intended for the American market. The figures below were expected amounts of export.

	Tons.
Tunny (Bincho Maguro)	3,000
„ (Makajiki)	1,500
Edible frog	300
Shell-ligament	150
Fish liver	1,000
Miscellaneous	500

Post-war export is classified below. About 10,000 cases of canned crab meat were produced in 1947, and of this 6,000 cases were sent to America. Among other shipments there were 7,000 cases of 1945 production to Belgium, 500 cases to Hongkong, 8,000 cases of 1946 production to America and 1,000 cases to Europe.

Also 200,000 cases of sardines preserved in tomato sauce were sent to America and Belgium.

Other canned fish exported in 1948 were:—

	Cases.
Salmon and trout	10,000
Sardines preserved in oil	22,000
Boiled sardines	20,000
Sardines preserved in spice	23,000
Smoked yellowtail preserved in oil	1,000
Oysters preserved in oil	3,000
Boiled mackerel	20,000
Boiled Asari (Tapes Philippinarum)	2,000
Boiled ligament of scallop	3,000
Boiled ell	1,000

Of the canned fish, crab, salmon and trout now enjoy the largest

demand from countries abroad. Regrettably, however, the catch is very slight because of the lost fishing grounds. The situation cannot be helped until fishing in the northern seas is vigorously revived. So, for the time being, canning must be focussed on tunny and sardines. The actual number of orders exceeded the above figures. Agar-agar is produced from sea-weeds which are found inexhaustibly along the shores of Japan. Though there is no fear in that respect, yet the question remains that production has not yet been fully developed due to the high price of sea-weeds. But in future agar-agar will be among the most hopeful Japanese marine products for export. The report deals with 1948-49.

Vitamin Oils

Vitamin oils are good quality liver oils containing 30,000 units of vitamin. The components are classified as A oil and D oil. A oil, of course, contains a great deal of vitamin A, and is extracted from the livers of black tunny and other kinds of fish (such as Mekajiki and Makajiki) and used for medicinal purposes, mixed with margarine. D oil is taken from the livers of bonito, tunny (bincho), yellowtail and mackerel and also mixed with feed for hens.

Last year, 56 tons of vitamin oils were shipped abroad and this year an export of about 100 tons is expected. Yet this amount only meets 3 to 4 per cent of American needs. In America, vitamin D has been successfully synthesised and decreased in price. So shipping of the livers is permitted now. But vitamin A is not manufactured artificially and is exceedingly costly, so that America does not allow the livers to be exported. Accordingly, what troubles Japan at present is that the procurement of livers for vitamin oils cannot be expected to increase unless a larger catch is tired.

D. General Marine Products

Last year, dried products such as shell ligaments, shark-fins, sea-slugs, ear-shells and squides were sent to Hongkong and Singapore and herringroe and dried bonito to America, aggregating approximately to 200,000,000. Dried ear-shells, ligaments, sea-slugs, etc. were originally exported to China and the southern countries in considerable quantities chiefly for Chinese tables. After the war, however, the export trade to China is not yet fully restored due to shortage of production and the unstable internal conditions of China.

These products have the oldest record in Japanese export and, moreover, are indispensable to the Chinese diet. Therefore this business will certainly return to pre-war state in future. The following were exported (dried) last year, 1948.

	Pel.
Shell-ligaments	3,673
Shark-fins	1,206
Sea-slugs	4,400
Ear-shells	1,029
Squids	3,870
Bonito	600

E. Goldfish and Carp

Considerable numbers were forwarded overseas before the war. Last year, 1,000 lbs. of goldfish and 2,500 lbs. of fancy carp were shipped out. These are hopeful items of export to America.

F. Seed-Oysters

More seed-oysters were sent abroad after the war than before the war. The export of this article only has been carried out as scheduled. Last year, 56,674 cases were recorded, but this year about 40,000 cases are expected because of American conditions, making a slight decrease as compared with last year. But as large orders are anticipated from Australia and Canada, it will be possible in future to export about 100, 000 cases every year.

G. Sodium Alginate

Sodium alginate is a new export article that has appeared for the first time after the war. It is manufactured from sea-weeds of the laminaria family and others. Because these sea-weeds are abundantly found in Japan just as in the case of agar-agar, demands will cover a very large scope from foodstuffs to industrial materials. Accordingly this is an item the production of which should be pushed vigorously. As it is, it is not yet industrialised on a large scale, but merely exists as a by-product. If a factory is built exclusively devoted to the production of sodium alginate it is certain that the product will play an important role in the future export map of Japan. — *Nippon Times*, 15th July, 1948.

MILLIONS FROM WEEDS

Japanese are the most hardworking race. They make millions from sea-weeds while we never think of exploiting them despite our vast sea coast and hundreds of lakes full of weeds of great medicinal value. The following summary on the subject is taken from report No. 42 of the Natural Resources Section.

1. Japanese dominance in the production and exportation of agar-agar is so great that the product may be considered peculiar to Japan.

2. The five largest consuming countries of Japanese agar-agar, judged by their imports, were the United States, England, Germany, France, and the Netherlands East Indies.

3. The method of manufacturing agar-agar in Japan, while primitive, is essentially simple and effective. Little mechanical or stationary equipment is required and no expensive or scarce ingredients are used. Wood for fuel is the largest single item of supply. Four pounds of fuel are required for each pound of raw material used.

4. In the United States and most other countries agar-agar has many uses. Chiefly, it is used in the manufacture of confectionery, laxatives, cosmetics, and bread; in meat canning; in dental products; and for bacterial culture media. Other uses included the clearing of wines and vinegar, the glazing of textiles and upper leather; use in cordials and condiments and in welding fluxes. In Japan its chief use is as a food. Although agar-agar has practically no food value, when mixed with beans or various kinds of fruit, it is highly regarded by the Japanese.

5. Although some agar-agar was diverted for use in the manufacture of shatterproof glass for airplanes, the industry is primarily a peacetime one. The method of gathering and processing the raw material employs a large number of persons. The product is of high quality and is in world demand.

6. The agar-agar bearing sea-weed is abundant along the entire coast of Japan. The most important sources are the Izu Islands and the coast of Shizuoka Prefecture.

7. During the decade from 1930 to 1940 the average annual production was 2,476 metric tons, and the average value was 10,569,486 yen. Sixty-one per cent of the average production was exported. In 1945, because of a shortage of labour for gathering

the sea-weed, production fell to 716 metric tons. The value went up in proportion to the scarcity of the finished product, reaching a level of 5.7 yen per pound compared to the average price of 1.5 yen per pound in the years from 1930 to 1939 inclusive.

Agar-agar is a big export item in Japan. Biologists need it as the perfect medium for bacteria culture. Doctors use it in surgery. It plays an important role in industry. Every country uses it, the United States in particular. There was scarcity of it during the war because this came mainly from Japan.

Agar-agar, the Malayan word for "sea-weed" from which vegetable gelatine is made, has been exported in large quantities. The first post-war shipment of 47,800 pounds left Japan for the United States on June 10 last year. Because of the universal demand and the narrowness of its source — there are some produced in Australia and in California but the bulk comes from Japan — there is always less of it than the world wants. However production is being revived with the help of SCAP.

The sea-weed industry today is found along the entire coast of Japan but conditions most suitable to the best species are found along the coast of Shizuoka Prefecture. Called "kanten" in Japanese or "jelly by natural freezing" this appellation gives the key to the process of its manufacture. First the weed is boiled after being received in mountain areas where the temperature is mildly freezing. The gelidium, rising to the top is skimmed off and cut into the shape wanted, either in strips or bars. Containers of these are set out in the open to freeze and thaw for two to three weeks. This removes the water and impurities. Although the method is primitive it has been found to be unmatched by other scientific processes.

Agar-agar is used in clarifying beer and wines, in meat packing, making jelly and ice-cream and in the textile industry for sizing cloth. It is also necessary in printing and engraving. As petrola-ger it is a laxative.

Agar-agar is manufactured in winter, that is December to March, and therefore the best season for purchasing the commodity is February to April. Before shipment it is divided into grades according to colour, solubility, amount of impurity, strength, etc.

Agar-agar has a tremendous demand all over the world as material for confectionery making and germ culture. America despatched orders for it right after the war. Export amounts are

classified below according to destination.

	lbs.
America	263,000
England	200,000
China	46,600
Hongkong	17,500
Additional	194,900
TOTAL	722,000

Production in areas outside Japan Proper

1. In 1915 Japan started the production of agar-agar in Karafuto (Sakhalin Island). *Ahnfeltia plicata* and *A. plicata* var *Tobuchiensis* are found in fair quantities in the Karafuto and Kauril Islands area. These species are called itaniso by the Japanese. Unlike the other species, itaniso is not mixed with other kinds of sea-weed in the manufacture of agar-agar. Production in Karafuto was increased yearly until recently the annual production amounted to 825 metric tons or 23 per cent of the total production of Japan.

2. In 1917 Japanese industrialists started manufacturing agar-agar in Korea. Most of the various species of sea-weed used are available in considerable quantity along the coast of Korea. At present the annual agar-agar production capacity of Korea is 635 metric tons. Since the Japanese manufacturers have left Korea, it is reported that only a few plants are operating and that production is negligible.

3. Dutch industrialists of the Netherlands East Indies started production of agar-agar when China placed a boycott on Japanese goods. They constructed plants in several South Sea Islands where raw material is found in sufficient quantity. Production figures of this enterprise are not in the possession of the Japan Agar-Agar Control Company. Exports from Japan to the Dutch East Indies fell off from 228 metric tons in 1934 to 64 in 1940.

4. In 1937 some Japanese agar-agar manufacturers went to Chintow, China, to attempt the organization of a like industry in that area. Raw material was found along the coast in small quantity, but, as the water in the processing area was not of suitable quality, the project failed.

5. Australia and New Zealand began the production of agar-agar during the war years, and Australia is now producing about 80 metric tons a year with the possibility of a much larger produc-

tion. New Zealand produces about 15 tons a year, but this agar is of a much higher quality than other agar-agar and is ideal for bacteriological use. A solution of 0.65 per cent gives a solid medium. This agar-agar is colourless with low ash and organic content.

6. The United States entered the agar-agar production field as late as 1937 but, because of lack of raw material, was only able to produce an amount sufficient to meet military demands and to maintain a stockpile during the war years. As little agar-agar bearing sea-weed is found along the coast of the United States, most of it must be imported from Mexico. A considerable quantity of this raw material is found along the coasts of Lower California and Mexico proper.

7. An inferior grade of sea-weed of several species called "kirinso" by the Japanese was formerly imported from Formosa. A substance used medicinally was extracted from the weed; the residue was used in the manufacture of agar-agar. An annual average import of 110 metric tons of high-grade agaragar bearing sea-weed was also made from Formosa.

EVIL EFFECTS OF WAR

Like all other industries fishing industry has had a great setback as a result of the terrific war.

Various difficulties confronting the fishing industry are discussed by Kenjiro Okubo, in JITSUGYO TEMBO. "Japanese economy is still in a muddle," he writes. "Key industries still have to recover, and industrial enterprises as a whole are encountering serious difficulties under the prevailing inflationary trend. The fishing industry is no exception, and, although a fair number of companies are now in operation, the volume of business is only a shadow of its pre-war self. This general decline may be attributed to the restricted fishing areas, and to the loss of fishing boats sustained by such leading firms as Nippon Suisan, Nichiro Gyogy, and Hayashi-Kane. However, tuna and bonito fishing, with other trawling operations, are quite active in the Kyushu area and offer hope for the future."

"Bottlenecks in fishing operations are many," Okubo states. "Especially notable are shortages of vessels, oil, ropes, and capital. Shortages are responsible for the current reduced operating schedule of many firms. An ocean-going tuna boat, for example, currently makes only six round trips yearly as compared with a pre-

war average of eight. With construction costs of vessels increasing daily, fishery enterprisers are encountering grave difficulties in bringing forth any profitable form of operation. This situation is due, in part, to the Government's inconsistency in not fixing official prices for shipbuilding, while taking rigorous measures to maintain the official price of fish."

This writer goes on to discuss the official price scale for fish, and argues for abolition of controls in order to encourage the industry. He closes by stating that "not only can the food problem be solved through the fishing industry, but great contributions can be made to the foreign trade situation through the production and marketing of canned goods on a nationwide scale."

The toughest bottleneck ahead of the fishing industry, according to an ORIENTAL ECONOMIST staff writer, is the shortage of such supplies as rope and nets. Especially serious "is the present scarcity of fishing rope, as the actual supply accounts for only 10 per cent of the estimated demand. In the case of fishing nets, supply is estimated to meet about 20 per cent of demand.

"Manila hemp is the most important material for fishing rope, and about 150,000,000 pounds were imported annually during 1935-1936, of which about 69,000,000 pounds were used by fisheries. Fishing interests claim that their present demand for Manila hemp is about 700,000,000 pounds, with an estimated minimum need of about 40,000,000 pounds. By comparison with this figure, the Government's hemp allotment represents only six per cent. During the April-June period of 1947, for example, only 249,000 pounds of hemp were supplied. What is worse, of this amount, Manchurian hemp (semma) comprised the major portion. The allotment for the July-September period was increased to 60,000 pounds, but was not supplied in full. As for Manila hemp, the first shipload after the end of the war, amounting to 1,600 bales, arrived in July 1947; of this 1,167 bales were allotted for fisheries, 100 bales for ship equipment, and 333 bales for export purposes.

India could supply not only rope but fishing nets too if this industry is organised.

FISHERIES EDUCATION

No large-scale industry can be developed without government guidance and active help. The Japanese Government lays the foundation by providing trained technicians in every fishing village

and research laboratories in the centres of industry as is clear from the following report compiled by the Natural Resources Section of the SCAP. The report has such valuable ideas for our fishery schools of the future that I have not condensed it so that our experts and fishery students can derive fullest benefit from its contents:—

1. In keeping with the importance of fish and marine products in the general economy of Japan, the Japanese Government has placed much emphasis on fishery education and fisheries research, both biological and technological.

2. Japan has 32 prefectural fisheries schools in 24 prefectures. These schools give special training in the biology of fishes and chemistry of marine products as well as technical and practical training in fishing, fish processing navigation, boat building, and allied subjects. The schools are designed to train men to be expert fishermen, and cannery managers. Graduates from the prefectural fisheries schools are eligible to enter the two fisheries colleges, one of which is at Hakodate. Hokkaido, and the other at Tokyo. The colleges offer three and five-year courses in fisheries. Three of the seven Imperial universities in Japan have fisheries departments in their faculties of agriculture. The departments offer a three-year course leading to a college degree. This is the highest level of fisheries education in Japan. Japan has 118 government-supported fisheries and marine products research stations and branches. Six are operated by the Government and 112 by prefectures. These stations conduct research in fisheries biology, fishing methods, and fisheries products.

3. Twenty-one marine and fresh water biological stations are associated with universities and fisheries colleges. These stations are designed for instruction, but much valuable research is done in fisheries biology by the university professors. Two of the large fishing companies operate three laboratories for research in the biology of fishes. One privately endowed marine research station is in Japan. In addition to the marine stations in Japan proper, the Japanese operated 14 fisheries research stations in Korea, five in Formosa, one in Karafuto, one in the South Seas, one is Kwantung, and three in Manchuria.

A. SKILFUL FISHERMEN

1. Japan, because of its dense population, meagre food resources, and insular position, was driven by necessity to become

a fishing nation. Fish supply most of the animal protein and a considerable amount of the fat in the Japanese diet. The Japanese developed into such skilful fishermen and extended their fishing grounds so far afield that they were able to produce for many years prior to 1941, not only enough fish for their own consumption, but developed a vigorous fish export trade as well.

2. In keeping with the great importance of the fisheries in Japan, the educational system of the country and the research facilities in fisheries biology and technology have received more attention and government support than in any other country in the world.

3. All the elementary schools in Japan teach about fish in their natural history courses. When a student passes out from the elementary school, he may attend any one of 32 middle fisheries schools. These are known as Prefectural Fisheries Schools (Kenritsu Suisan Gakko). The schools are located so that nearly every prefecture with fishery interests has one or more. The middle fisheries schools are designed to train students to be expert fishermen, cannery foremen, net-makers, and for other semi-specialised jobs. Graduates from the prefectural fisheries schools are eligible to enter the fisheries colleges.

4. The two fisheries colleges in Japan are the Hakodate Fisheries College in Hakodate, Hokkaido, and the Tokyo Fisheries College in Tokyo.¹ These colleges offer three to five-year courses in coastal fisheries, fisheries technology, agriculture, and teacher training. The physical plants of both institutions are now being used as billets for occupation troops. The colleges continue to operate, however, in temporary quarters.

5. In addition to the fishery schools and colleges, three of the seven Imperial universities in Japan proper have departments of fisheries. These university departments represent the highest level of fisheries education in Japan. Three-year courses are given which lead to a university degree, the Gakushi. Graduate schools are also provided which grant the Hakushi or doctor's degree. The universities train men for research and the highest civil service positions attainable by technically trained men.

NOTE.—The information presented in this report was gathered and compiled by Capt. John L. Kask, Fisheries Division, Natural Resources Section.

¹ Until April 1946 the Tokyo Fisheries College was known as the Imperial Fisheries Institute.

6. Besides the provision made for fisheries education at every level and for every purpose, Japan has 118 Government-supported fisheries and marine products research stations and branch stations. The Imperial Government supports the largest, the Imperial Fisheries Experimental Station in Tokyo, with five branch stations strategically located throughout the country. The station and its branches carry on investigations in all fields of fisheries biology, fisheries chemistry, and oceanography. They also gather daily records and prepare monthly reports on the location of warm and cold bodies of water, broadcast weather reports, and the whereabouts and movements of fish.

7. Forty-four prefectures support 112 research stations and branch stations. These carry on research in local problems relating to the fisheries industry, both biological and chemical. Some of the stations and branch stations do only fresh water research. In addition to these, 21 marine and fresh water biological stations that do biological work in fisheries and related subjects are associated with universities and colleges. Two large fishing companies have private laboratories with branch stations doing biological and chemical research in fisheries, and there is one privately endowed marine fisheries and biological station. A total of 145 marine and fresh water fisheries research stations are investigating the chemistry and biology of marine products in Japan proper. One of the stations is in Okinawa.

8. An important research station is located in Fusan, Korea, in addition to 13 branch or provincial stations in Korea, five stations in Formosa, one in Karafuto, one in the South Seas (Palau), one in Kwantung, and three in Manchuria. Before the war, 170 marine research stations were operated in areas controlled by Japan.

B. FISHERIES EDUCATIONAL INSTITUTIONS

1. *The Prefectural Fisheries School*

(a) Entrance to the 32 prefectural fisheries schools in Japan is limited to those who pass out of the six-year elementary schools. At times these schools are run separately from the prefectural fisheries research stations. In some cases the staff serves both as teachers and as members of the research staff.

(b) A typical example is the Kanagawa Prefectural Fisheries School at Misaki.

- (1) This school consists of a two-storey frame building, which was designed to accommodate 200 students; an annex; and separate laboratory.
- (2) Entrance to the school is limited to students who have completed the elementary schools, or persons who are at least 12 years old and have passed a test equivalent to that of the graduation test of the elementary schools.
- (3) Though the school was designed to accommodate 200 students, only 91 were registered in 1945. The age of the students varied from 13 to 19 years.
- (4) The regular teaching staff has six members including the principal, plus three part-time instructors, a wireless telegraph instructor, two clerks, a part-time school doctor, and a school dentist.
- (5) The school course lasts four years, and the following subjects are taught: ethics, geography, history, music, mathematics, English, wireless telegraphy, zoology, fisheries, hydrology, meteorology, fishing boats, machinery, drafting, practical boat exercises, and navigation.
- (6) Support for the school comes from entrance fees, tuition fees, and prefectural government grants. Its expenditure in 1945 amounted to approximately yen 27,000.

2. *The Fisheries Colleges*

(a) The Hakodate Fisheries College, at Hakodate, Hokkaido, operates under the Ministry of Education, and the Tokyo Fisheries College Tokyo, operates under the Ministry of Agriculture and Forestry. These colleges or higher schools of fisheries, give courses which last from three to five years according to the type of study selected.

(b) The Tokyo Fisheries College is a direct descendant of the oldest higher fisheries school in Japan. The first fisheries school was organized in 1889 under the auspices of the Fisheries Society of Japan. This school was transferred from the society to the Imperial Government of Japan in 1897, when research and experimentation were added to its original scope. In 1929 it was formally reorganized as an educational institution and was called the Imperial Fisheries Institute (Suisan Koshujo). In April 1946 the name

was changed to Tokyo Fisheries College.

(c) The College operates under the Ministry of Agriculture and Forestry. It is the only educational institution in Japan not under the supervision of the Ministry of Education. Thus, a certain degree of freedom and independence has resulted.

(d) The appropriations received by the College since 1940 are as follows:

Year.	Regular Budget. Yen.	Special Work. Yen.	Total. Yen.
1940.....	487,880	76,169	564,049
1941.....	532,841	57,586	590,427
1942.....	539,754	23,198	562,952
1943.....	567,949	100,909	668,858
1944.....	620,131	56,501	676,632
1945.....	725,671	662,807	1,388,478

The steady increase in appropriations in the regular budget and the steep increases in the special work budget during the war years, should be noted.

(e) In addition to the school in Tokyo, the following field stations are maintained for practical exercise:

- (1) Tateyama Station, Chiba Prefecture, gives practical exercises in fishing methods, meteorological observations, manufacture of fishing gear, swimming, rowing, and sailing boats.
- (2) Numazu Station, Shizuoka Prefecture, provides practical instruction in fish canning and processing.
- (3) Kominato Marine Biological Laboratory, Chiba Prefecture, is used for experiments on salt-water fish and for meteorological observations.
- (4) Kanasawa Station, Kanagawa Prefecture, was taken over by the Imperial Japanese Navy and is not used as a fisheries station at the present time.
- (5) The Yoshida Station, Shizuoka Prefecture, is used for practical exercises in fresh-water fish culture.
- (6) Oizumi Station, Yamanashi Prefecture, is used for scientific research and the study of the culture of cold fresh-water fishes.

(f) The Tokyo Fisheries College until recently operated two vessels. One is the "Unyo Maru," a three-masted barque of 444 tons. This is an old vessel that is now moored near the College.

It was used for practical exercises in seamanship. The second vessel is the "Shimkotsu Maru." This is a trawler of 500 gross tons and 1,400 horse-power. It is loaned to the College by the Ministry of Agriculture and Forestry. The "Hakuyo Maru," 1,327 gross tons and 1,400 horse-power, formerly owned and operated by the College and one of the best equipped and most modern fish research vessels in the world, was taken over by the Japanese Navy in February 1943 and was sunk by Allied submarine action in March 1944.

(g) The College divides its curriculum into three sections: The regular course, the post-graduate course, and the pelagic fisheries course. The regular and the post-graduate courses are further subdivided into the fishing, the technological, and the fish culture courses.

(h) The regular course lasts four years. Only successful graduates of the four-year course of the middle or prefectural fisheries school, or high school graduates are eligible to enter. Candidates are limited in number and are rigorously selected.

(i) The post-graduate course is open only to graduates of the College with high academic standing and the recommendation of the director.

(j) The pelagic fisheries course lasts two years and only highly qualified graduates of the regular course are eligible to attend.

(k) Courses of instruction are offered in general and aquatic zoology, general and aquatic botany, ichthyology, bacteriology, fish diseases, chemistry, oceanography, meteorology, history of fishes and fishing, fish culture, fishery law, practical exercises in fish canning and processing, mathematics, physics, morals (now banned), English, German, economics, finance, merchandizing, navigation seamanship, the theory and manufacture of fishing gear, principles of fishing, boat construction, diesel and steam engineering, machine designing practical exercises at sea, swimming, rowing, and first aid. Before the war military training by the army was included. During the war navy training was introduced.

(l) The College has a student body of 300 to 400. The number of students who graduated from 1940-1945, in the various sections of instruction, are shown in the following table:

Year.	Fishing Course.	Technology Course.	Fish Culture Courses.	Total.
1940.....	33	30	18	81
1941.....	32	28	19	79

1942.....	35	32	16	83
1943.....	36	36	20	92
1944.....	37	34	29	95
1945.....	51	46	26	123

The total number of graduates from 1897 to 1945 was 2,778. The Institute employs 170 people including the boat crews.

(m) The Hakodate Fisheries College parallels the teaching and research carried on at the Tokyo Fisheries College. In addition to the courses outlined above, the Hakodate College offers a course for training teachers in fisheries subjects.

3. *The Universities*

(a) Three of the seven Imperial universities in Japan proper have departments of fisheries. These universities are the Hokkaido Imperial University at Sapporo, Hokkaido, the Tokyo Imperial University, Tokyo, and the Kyushu Imperial University, Fukuoka. These departments offer three-year courses which lead to a college degree in fisheries, the "Gakushi" which corresponds to a Master's degree.

(b) The oldest and most renowned department of fisheries as at the Tokyo Imperial University. It forms one of seven departments in the Faculty of Agriculture. On the staff are four professors, three assistant professors, three lectures, five regular, and seven or eight part-time laboratory assistants. Graduates from the Tokyo Imperial University, for the most part, make up the staff of the fisheries departments of the other two universities.

(c) Courses of instruction are offered in the following subjects: zoology (general and aquatic), botany, plankton, oceanography, properties of natural water, principles of fisheries, culture of aquatic products, methods of fishing, technology of fishery products, hydro-biology, bacteriology and pathology, animal histology and embryology, organic chemistry, refrigeration, fisheries law, applied meteorology, fishing boat machines, fishing boats, and a seminar in fishing. Elective courses offered are experimental genetics, political economy, physical chemistry, and biochemistry.

(d) Each faculty also provides a university-hall (Daigaku-In) or post-graduate course. No regular courses of lectures or seminars for graduate students are given, although occasional courses may be offered. Two years (usually) are spent in research under a major professor. At the end of this time, the student may present

a thesis, which consists of original research, to an examining committee. If the committee looks with favour on the thesis, the candidate is granted the doctor's degree or "Hakushi."

(e) The academic year of the university begins 1 April and ends 31 March of the following calendar year. The school year is divided into two terms: the summer term from 1 April to 31 October, and the winter term from 1 November to 31 March. A summer vacation from 11 July to 10 September and a winter vacation from 25 December to 7 January are provided. During the war these schedules were not always maintained.

(f) Students applying for entrance to the university must be graduates of the higher schools (Koto-Gakko), of the higher department of the Peers School, or students who have satisfactorily passed an entrance examination given by the faculty. The graduates of the higher schools and higher department of the Peers School take precedence over other applicants. At times only a fraction of the eligible students who apply are admitted to the university, as all faculties and departments of faculties are limited in the number of students they can accommodate.

(g) The number of students in the Department of Fisheries during the years 1942 to 1945 was about 60, or 20 in each of the three classes. The number of students before 1942 was only about one-half that number.

(h) Summer courses in marine zoology and fisheries are conducted at the Marine Biological Station at Misaki, which is operated by the Faculty of Sciences. Students in the first year attend these classes and exercises for four weeks, in the second year for three weeks, and in the third year attendance is optional.

(i) In addition to the faculties at the university and at the Misaki Marine Biological Station, the Department of Fisheries maintains two fisheries laboratories in Aichi Prefecture. One is at Shinmaiko on Chita Peninsula and one is at Izumi-mura on Atsumi Peninsula. The former is used for the study of bay and shallow-water fishes, whereas the latter is equipped for studying the culture of fresh-water fishes. An aquarium is attached to the Shinmaiko Laboratory, where many fresh and salt-water fishes are exhibited to the public. Research is also carried on in the culture of sea-weed and oysters. No instruction is given at these stations, but their facilities are used by university staff members for research. Only one professor and two assistants are on the resident staff of these

stations.

(j) About one-half of the yearly expenditure of the university is derived from government appropriations. The remainder is derived from tuition fees and from incomes of properties owned by the University.

(k) The research work carried on by the faculty and the senior students is usually published in the Journal of the College of Agriculture. In 1943 the publication was suspended. It was then in its fifteenth volume. At times fisheries researches are also reported in the Journal of the Faculty of Science (Volume 6, 1943), in *Annotationes Zoologicae Japonenses* (Volume 22, 1943), and in the *Zoological Magazine* (*Dobutugaku Zasshi*, Volume 56, 1944).

(l) The fisheries departments of the other two universities are patterned largely on the Fisheries Department in the Tokyo Imperial University. Both schools have been established only a few years.

C. FEDERAL FISHERIES RESEARCH STATIONS

1. The Japanese Imperial Government supports the largest fisheries research station in Japan. This is the Central Imperial Fisheries Experimental Station in Tokyo. The Experiment Station operates under the Ministry of Agriculture and Forestry (Bureau of Fisheries), on an annual grant of 720,000 yen.

2. The physical plant consists of three main buildings. The first of these buildings has the administrative office, the director's laboratory, meeting rooms, specimen rooms, records room, and library. The other two buildings are the chemical and oceanographical laboratories. Additional buildings are a large experimental water tank and aquarium building, a radio building, a refrigeration building, a small experimental cannery, extensive machine shops, and numerous small service buildings: 25 buildings in all. The station operates a research vessel the "Soyo Maru," 220 gross tons, with a 333-horse power diesel engine.

3. In addition to its plant in Tokyo, the Imperial Fishery Experimental Station has field stations at Ueda City, Nagano Prefecture; the Kasaoka Station, Kamizuma-Uchi-Mura, Okayama Prefecture; the Nanao Station, Nanao, Ishikawa Prefecture; three minor experimental places at Arashima, Shimane Prefecture; Minato in Chiba Prefecture; and Misaki in Kanagawa Prefecture. Each field station has a permanent staff of three or four persons. The

experimental places have no regular staffs.

4. The present staff consists of 21 expert investigators, 14 assistant investigators, and approximately 85 lay employees, including the ship's crew.

5. The investigations carried on by the Fisheries Experiment Station are divided into 11 sections as follows:

- (a) Fisheries investigations (life history and population studies).
- (b) Fish technology (studies in net preservatives, etc).
- (c) The chemistry of fishery products.
- (d) Fish culture.
- (e) Fish boat design.
- (f) Fishing machinery.
- (g) Physical investigations.
- (h) Chemical investigations.
- (i) Biological investigations (taxonomy, etc.).
- (j) Oceanographical investigations (hydrography, marine biology, fish forecasting).
- (k) Co-ordinating experiments of other stations.

6. This experiment station is obviously held in high repute by the Japanese Government. It was allowed to use its research vessel throughout the war and its substantial appropriation of 720,000 yen a year was never reduced. The station authorities are preparing plans to expand their physical plant in the immediate future and to increase the number of workers to take care of additional research necessary for the full use and development of the fishing industry.

7. The Imperial Fisheries Experiment Station publishes the results of its research in three main periodic publications.

(a) The Oceanographical Investigations, a semi-annual report. The last published issue is the July-December issue No. 71, published in October 1943.

(b) The Journal of the Imperial Fisheries Experiment Station. This is an annual journal and includes dissertations on the general results of the station's investigations. The last published volume is No. 13 containing papers No. 91-93, published in March 1943.

(c) Fishery Investigations, published annually. This includes reports on the chemistry and the biology of fishes and other marine products. The last published volume is No. 9, containing papers

No. 78-83, published in March 1943.

D. THE PREFECTURAL FISHERIES RESEARCH STATIONS

1. Each prefecture with fisheries interests supports a fisheries research laboratory. These laboratories conduct research on problems of local interest, both biological and chemical. They may or may not be associated with the prefectural fisheries school.

2. The prefectural stations often operate large fishing and research vessels. The fish caught incidental to fishing trials is sold on the public market. The money from the fish sales reverts back to the government to help defray the expenses of the stations.

3. Fishery police or patrol vessels often operate from these stations. At times investigators are called upon to act as police in addition to their other duties, although regular water policemen under the prefectural police department are also supplied.

E. MARINE RESEARCH STATIONS ASSOCIATED WITH COLLEGES AND UNIVERSITIES

1. Fifteen marine research stations are associated with universities in Japan and six are associated with colleges. Though these stations are provided primarily for practical instruction for students, they also serve as places of research for university professors. Life-history work and research in systematic ichthyology is done at these places as well as research in other marine organisms.

F. FISHERIES AND MARINE RESEARCH STATIONS OPERATED BY PRIVATE COMPANIES

1. Of the three big fishing companies in Japan, two have laboratories that conduct research in marine biology and chemistry. In fact, some of the best fisheries research work done in Japan is done under the auspices of the Nippon Suisan K. K. (Japan Marine Products Co., Ltd.) The research was initiated and conducted by the company and the research records were carefully guarded.

G. PRIVATELY ENDOWED MARINE RESEARCH

1. Japan has one privately endowed marine research station. This station, near Shimoda, Shizuoka Prefecture, was founded and supported by Takanage Mitsui. All phases of marine biological research are carried on at this station by both paid and volunteer workers.

H. RESEARCH STATIONS IN FORMER COLONIES AND MANDATED AREAS

1. In Korea a large marine research station at Fusan is supported by the Central Korean Government. The central station has two branch stations. In addition to this, 11 provincial stations and branch stations are doing research in problems of local interest.

2. Formosa has one central research station with a branch station and four provincial stations.

3. In addition to the above the Japanese operated one research station at Karafuto, one at Palau in the South Pacific, one at Dairen, Kwantung, and three in Manchuria.

I. PLANS FOR THE FUTURE.

1. In spite of the imposing array of fisheries schools and experimental stations which Japan already has, the Japanese are thinking of adding more. New shoals are being opened in Shimane and Wakayama Prefectures.

2. The tremendous activity in education and research in fisheries indicates to what extent Japan believes her future lies in the seas.

UNIVERSITIES WITH DEPARTMENTS OF INSTRUCTION IN FISHERIES.

1. Name of universityTokyo Imperial University
(Tokyo Teikoku Daigaku).

AddressMukogaoka, Hongo-ku, Tokyo.

Head of fishery dept....Masashi Ishikawa.

Source of supportMinistry of Education.

Period of studyThree years.

Number of staff	Professors,	4
	Assistant professors,	3
	Lecturers,	3

TOTAL	10
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Number of students ad-

mitted.....60 from 1942 to 1945, 30 before
1942.

II. Name of universityKyushu Imperial University
(Kyushu Teikoku Daigaku).

AddressHakozaki, Fukuoka, Fukuoka
Prefecture.

Head of fishery dept.....Keitatro Uchida.

Source of supportMinistry of Education.

Period of studyThree years.

Number of dtaff	Professors,	4
	Assistant professors,	4
	Lecturer,	1

TOTAL	9(regular
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Number of students ad- mitted	30	officers).
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III. Name of universityHokkaido Imperial University
(Hokkaido Teikoku Daigaku).

AddressKita-Hachijo, Sapporo City,
Hokkaido Prefecture.

Source of supportMinistry of Education.

Period of studyThree years.



Before World — War II, Japanese fishing boats were active from the Okhotsk Sea in the north to the waters in the South Pacific. But conditions have changed since the war. Japan must now enter into agreements with various countries concerned so as not to cause international friction.

A new development in Japanese fishery activities is the inauguration of joint enterprises with foreign fishery interests, through Japanese offers of technical services, fish marketing, chartering of fishing boats, and all-round joint enterprises. During the year 1957 alone, 28 contracts were signed, including 17 in the Southeast Asian area, five in South America and six in the Near and Middle East.



CHAPTER V

TEN PILLARS OF CHARACTER

The Japanese always aspire for better life, a life of love, a life of comforts, a life with honor and when they find it is not possible to achieve the objective in this life they end this life to be reborn to achieve their purpose.

100,000 people commit suicide every year. People understand it, appreciate it and many beautify it. To the Japanese death is the solution of all troubles and therefore it is the best friend of mankind and nothing to be afraid of. We the followers of Gita spend our lives depressed by the fear of death. What a sad commentary on our professions and practice?

Japan is sometimes called "Toyo-ashihara Mizuho-no-kuni," which means, "The Isle of Happy People." In keeping with this description, honesty and ingenuousness are characteristic of the inhabitants of this land — they detest, above all things, deceit and intrigue.

Smiling Pays — Whether one goes to a department store, rides a bus, gets into an elevator or eats in a restaurant, one is always, always, met with utmost courtesy, made to feel at ease and served with utmost attention. Going in, one is greeted with a smile and a happy word of thanks and a smile. All these undoubtedly have helped to make business prosper and spending money almost a pleasure.

There are many good reasons for the prevailing Japanese smile: some natural, others artificial; although the latter are so deeply ingrained in the national character, and are of such long standing, that they have become second nature.

That smile is not a mask, as the more undiscerning and suspicious foreigner declares, but a mirror, no doubt born of the Shinto firstprinciple that when one communes with the Ultimate, gazing

into the sacred Gohei, one is really looking into the face of his own soul. That is the worshipper's share in and of Infinity. The flesh may suffer, but the Buddhistic soul is always serene; the Shinto soul always smiling.

I doubt if any race has ever endured for so long such severe and such categorized discipline as the Japanese. Even this was given the gracious name of Etiquette. It was Spartan in character, although it did not make stoics out of them. Penalties for trivial infractions were torture and death. The Japanese became the most cultured, and consequently the most artificial, nation on the face of the earth.

We cannot understand people who are always so darned 'nice.' We suspect their motives. For when we get angry we rear and tear; if we do not like a person, we usually show it; if we are bereaved, we weep and gnash our teeth. But under all such vexations the Japanese simply smile and smile, until sometimes we have a great mind to curse them.

But it is by no means a deliberate matter of hypocrisy, nor professional pleasantness, nor stark stoicism. For one thing, they are a laughing folk; for another, they have surprising stamina; and finally, smiling under adversity is a part of their religion, a survival of their feudal code of Chivalry, embodied in Bushido. Aside from all other considerations, they are a good-natured race with hair-trigger volatility of emotion that is ever ready to burst forth into smiles or laughter, giggles or chuckles.

2. *Love of Nature*

The Japanese are true lovers of nature. Closely associated with their traditional shrine worship is the Japanese love of nature, of mountains, hills, valleys, sea, rivers, lakes, trees, flowers, and so on. In no other country, perhaps, is love of nature greater than in Japan. It is part and parcel of the culture of Nippon. In keeping with the traditions and the natural inclinations of the people, the Japanese Government has developed an admirable and extensive national parks system, worthy of emulation by our Government. In every city, in every prefecture, everywhere in the country, there are beautiful parks which offer places of expansion and amusement to the people. In these parks the people truly enjoy themselves, admiring the beauty of the country-sides, the fragrance of flowers and the beneficent effects of fresh air.

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In the building of their great public parks as well as of their private gardens, the Japanese manifest such love of fine art and natural beauty that at once distinguishes them from all other people. They make the most exquisite gardens: eloquent expressions of their ideal of quiet unostentatious pleasure, reproducing in miniature, landscapes, rocks, trees lakes and islands in all their natural charm and beauty. You see in such tiny gardens dwarfed trees and plants, as tiny as one can imagine, actually bearing flowers, which none but the most expert horticulturists can grow. This cult of Nature, this love and devotion to the beautiful and artistic and hisotric spots and objects of Nature, add still more to the Japanese love of their country.

3. *Simple Home Life*

Simplicity is a great blessing to the people of Japan. Japan offers an unusually pleasing picture of home life. Despite the fact that it is filled with a gentle ceremonialism, these ceremonials have become pretty and always polite conventions, moulded into the daily materials of life itself. Immediately on rising come the formal ablutions of washing the face and rinsing the mouth, by the head of the house; then he turns to the sun, claps his hands and with bowed head utters the simple greeting to the Source of life:

'Hail this day to thee, O August One!' follow silent prayers before the ancestral tablets on the God-shelf. At sunset, the workers return home, and you hear much splashing about in baths — often a more or less public ceremony on a summer eve, with tubs drawn out to doorways where bathers sit and chat, stew and doze.

At night the houses are hermetically sealed, although inside the house one may literally stride through the paper walls dividing it into rooms. Like most other things in Japan, on first sight the houses seem so impermanent, so fragile and so trivial. But further acquaintance discloses that this is an error. Beneath their delicacy is an intangible backbone of something akin to flexible steel that resists rude or impious treatment, having withstood the very wrath of God through his handmaid, Nature, that has ever failed to break their invisible Shinto spirit of steel. Flimsy wooden structures thatched with straw, they appear. Within is little or no furniture, not a single chair or any of the modern appliances of comfort; above all, no heat save from a lacquered brazier around which, their bodies all under a single "futon" (quilt) that catches its modest

heat, they sit on severely cold nights. A few moveable ornaments, practically no furniture or books; eating and sleeping is done on the floor. Nor are the Japanese style homes of the well-to-do much different: no not even the interior of the palace of a Shogun.¹ In every case there is rigid economy that is almost always lost sight of in the charm and grace of their manners, their ceremonials their hospitality. It is the secret strength of their art, their culture, their race. A modest family could move almost in a band-box — a kakemono, a vase, futon, a few kettles, bowls and kitchen utensils.

The Japanese are one of the simplest of peoples, and by that I mean simple in practically all modes of life, pleasures and emotional expression rather than in intelligence. This very simplicity is an established and logical outgrowth of Shinto-Buddhism. Which leads me into an emphatic denial of an oft-heard accusation, that the Japanese are indifferent to religion. They show an eagerness only for mechanico-material advantages, for similarly religious reasons; because they have been commanded by Hirohito, their Royal Ruler, Highest Priest and Spiritual Father, Son and Descendant of Heaven, to modernize! (This was written before the war)

It is not a bovine indifference to life and its burdens; there is a living Plan of Life, carried out daily in a lively manner. The patient quiet folk we see toiling in the fields or occupied with the humblest crafts and callings, are potential heroes ready to step into any sacrifice or peril included in the national plan without patriotic fireworks, personal fuss or seeming regret. What we see externally, then, is an irritating indifference. All of these things are part and parcel of the individual and national character of the Japanese.

Another thing that characterizes the public services in Japan is the true spirit of service with which those that serve, really serve, the public. There is little or nothing of the indifference or arrogance with which even the most humble person is attended to. The spirit of helpfulness is there, whether in a government office or in a restaurant or store. One can always rest assured of courteous and thorough attention. There is perhaps no government today that does more for its people than that of Japan. This attention is reflected in the achievements of those that get the attention. One needs only to look at business progress, in the expansion of industry, and in the world-wide sales of Japanese goods, to realize

¹ Now modern Japanese have begun patronising foreign furniture.

the effective service that the government renders, and the tremendous good that is accomplished with that service.

4. *Foundation of Culture*

Japan is the one nation today that is credited with the longest uninterrupted history known, ruled since time immemorial by only one line of emperors. Among the fundamental traits of its people is unswerving loyalty to their ancestors and rulers to the extent of deifying them, and to their traditions accumulated through the experience of the ages. Other significant traits are simplicity, courtesy, love of nature, a high sense of honour and patriotism, studiousness and industry, self-discipline and intense nationalism. A sense of oneness with Emperor and Country and faith in the eternal nature of the Imperial rule are still other fundamental characteristics. These outstanding traits spring from age-old traditions. Tradition has it that the Sun-Goddess, divine ancestress of the rulers of Japan, had decreed that Japan 'is the region of which my descendants shall be sage-kings,' while the Constitution, in its Article I, say, 'The Empire of Japan shall be reigned over and governed by a line of emperors unbroken for ages eternal.'

Loyalty to the past and its traditions has not prevented the Japanese from absorbing much of the civilization and culture of the West. On the contrary, it has enabled them to weigh it in the balance of the experience of their ancestors, a sort of consultation with their spirits. As a matter of fact they do not only 'sort of' do it, but the Emperor and the highest officials as well as the lowliest labourers go to the tombs of their ancestors, which are generally converted into shrines, and perform acts of reporting their thoughts and their plans to the spirits of their dead and pray for inspiration and guidance in the solution of the gravest problems that beset them. Thus they go through the careful and serious procedure of determining as far as possible what the consequences would be of whatever actions they intend to take or of whatever new thoughts and tendencies they wish to follow or adopt.

Ancestral Worship a Religion. — Thus the ancestors are revered in Japan and this form of worship seems to accomplish wonders among the people. Instead of the great churches of the West, Japan has its shrines everywhere, both great and small: some imposing, others simple and even crude. But whatever the appearance of the shrines, the people value them out of respect for those

lives they commemorate. They go to these shrines in all humility. There they bow reverently and pray in silence. It is true, tourists somewhat desecrate such places by their curiosity and utter lack of reverence, but this has not abated the constant surging of humanity to and from such hallowed places.

Unlike Muslim cemeteries, where we feel a sense of awe and fear, the shrines seem to invite communion of the spirit of the dead with those of the living. They are visited and decorated, not once a year as Muslims do with those of their relatives, but often, and consequently they become constant reminders to the people of the thoughts, ideals or achievements of the persons to whose memory such shrines have been built. There is, for instance, a little shrine in Tokyo, simple and unpretentious, but very much venerated by the common people. It stands as a monument to faithfulness and loyalty. It is called the shrine of the Forty-Seven Ronins. It marks the graveyard of forty-seven samurai, beside that of their lord who had been unjustifiably humiliated and later condemned to death. To avenge the wrong and injustice done their master, these forty-seven men assaulted and killed the powerful lord who was the cause of the misfortune upon their master, and then committed harakiri together.

Spiritual Entity. — Japanese culture is similar to that of us Indians in several respects. Worship of Gods and spirits of the dead is inherited by the Japanese from India.

Japan is a land not only of Gods but of spirits. The Japanese lives with his dead as though they were living, and tries to make them proud of him. That is the larger part of his religion. In each home there is a God Shelf, or tiny shrine, dedicated to certain gods of special significance to himself and his ancestors. In the *butsudan*, are housed tablets upon which are inscribed the names of his ancestors. The spirits must be greeted and welcomed, given a bit of food and drink, and a light lit to guide their footsteps. Thus all Japanese commune with their dead, share with them their joys and happiness and do little unsuspected things for them. It is nothing but the Indian custom of Shradh and forefather worship.

Japan is great not because of modern mechanical progress alone. She is great because of her Buddhist and Shinto culture. Its greatness will endure as long as its "peculiarities" persist. When all those ingrained qualities begin to disappear and Old Japan has faded out of the fibre, then Japan will have had her day and

begin to slip back.

Japan has always translated this intense spiritual entity into terms of everyday life through an endless procession of active symbols always to be found half concealed somewhere beneath the surface of most modern engines, structures and institutions.



Japan's sudden emergence as a modern nation at the end of the last century was a source of great inspiration to modern India. But India as a whole watched with dismay and sorrow Japan's following in the footsteps of the imperialist and colonisalist nations of the West. This was a tragedy of the first magnitude. India long ago recognized an inherent beauty and goodness in the soul of the Japanese people matched by the beauty and charm of their country and its landscape. Japan's imperialist policies and wars had marred this inherent beauty of its soul. In this beautiful country inhabited by an intelligent and gifted people who love beauty, order, courtesy and good manners, the mood of chauvinistic pride, violence and war was an utterly unnatural intruder. During its brief intrusion into the national mind, it did havoc on its neighbours and finally on Japan itself. Let Hiroshima be the symbol of this national resolve; let the deeply touching inscription on its peace Memorial Grave "Rest here in peace: for never again will we repeat the mistake," be inscribed on the hearts of our children of every generation dedicating them to peace, tolerance and co-operation. This is the path of glory for Japan today; and it is an undying glory unlike the glory of violence and war. India chose the path of this glory long long ago and has dedicated herself to it with a fresh determination on her emergence from political subjection thirteen years ago. The glories and victories of peace are greater and purer than those of war. Today, the greatness of a people or a nation will be measured by the contribution it makes to reduce sufferings and tensions and enhance happiness and peace among mankind. This is a road on which India and Japan, both youthful and dynamic, can march together along with other nations similarly resolved, creating a mighty bulwork of peace and fellowship in the modern world."

Swami Ranganathananda — The Yomiuri Shimbun



CHAPTER VI

SECRETS OF INDUSTRIAL SUCCESS

Japanese industrialists do not squeeze the consumers. They do not draw fabulous salaries. The proprietor of a steel factory and his two bother shareholders draw only about four rupees per day (the salary of a clerk in India) — 'Made in Japan.'

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Lovers of Nature are alwatys master of artistic tastes. Japanese are true lovers of Nature. Closely associated with their traditional shrine worship is the Japanese love of Nature, of mountains, hills, valleys, sea, rivers, flowers and stones. In no other country, perhaps, is love of Nature greater than in Japan. No wonder Japan is a country of fine arts.

Hardly a century has elapsed since Japan was freed from the bondage of feudalism and she set about organising a modern economic system. Those who are interested in the whole history of Japan's industrial evolution may read the book¹ *Secrets of Japan* (published in 1935, 1936 and 1937). Some of us who see through British eyes, think with British brains and suffer from inferiority complex, have been cursing the Japanese industrial methods for two decades. We have cursed them long enough. Now let us emulate what is good in Japan's industrial organisation which, despite long years of war and atom bombs, is rapidly recovering her lost markets and that too miraculously. Let us try to study and diagnose Japan's industrial organisation which is the result of man's genius and Nature's blessings.

CLIMATE A BLESSING

The more I see Japan, the more I am convinced that Japan

¹ By the author of this book.

is a favourite child of God as far as her climate and natural beauty are concerned. The U.S.A. is indeed the greatest favourite child of God but Japan is also a great favourite compared to India. Think of the cruelty God has done to India in giving us a long summer of nearly six months, and at places even seven months, and compare it with the climatic conditions in Japan, then you will realise how God has been partial to Japan.

Practically the whole of Japan is one beautiful garden, and in one hour's drive from busiest cities you can reach quiet and beautiful abodes of Nature. We in India are justly proud of our Kashmir (called the Paradise), but the whole of Japan is a bigger Kashmir, where one can enjoy a small excursion to a beauty spot at a cost of five to ten rupees for a week-end.

Nature's blessings on Japan are manifold. Japan on the whole is mountainous, extensive plains being comparatively few. Owing to the mildness of climate and abundance of rainfall, forests are found throughout the land. Rivers intersect the country in almost every direction and help irrigation and transportation. Japan also lies along one of the world's most noted volcanic routes, and the volcanic cones that stand in almost every part of the country tend to add to the diversity of natural scenery and also to heighten, by contrast, the natural beauty of the country.

NATURAL BEAUTY

Japan is endowed with an infinite variety of topographical features. Her territory abounds with mountains, enchanting valleys, rivers, rapids, waterfalls and fascinating and unique coastal indentations. Wonders of Nature such as these have inevitably influenced and moulded the characteristics, manners and customs of the Japanese people. The very traditions, history, philosophy, and art were all born beneath the benevolent sway of Nature and have been nurtured under its benign guidance.

MILD CLIMATE

The unique geographical situation renders Japan's climate very mild and temperate and gives it the regular alternation of the four seasons of the year.

The climate of a country is a great factor in enabling its people to work hard or to make them lazy. In India, the terrible heat deprives us of half our energy, while Japan has a very enviable

climate which makes her people work hard and with cheer.

HONOUR ABOVE LIFE

The Japanese craftsmen and workers are highly conscientious. To them honour is always more precious than life. Their highest ambition is to become foremost in their profession, thereby elevating their family reputation. Mr. Fujihara relates the following true stories¹ :—

(a) Once upon a time there lived in the city of Yedo (now Tokyo) a celebrated mask-maker, Gengoro by name. He was highly temperamental like all artists, and would not work when he did not feel like doing so. He was, however, far from being devoid of artistic conscience and would not resort to makeshift work even in the depths of poverty. Gengoro was a thirsty soul, and would not heed his wife's remonstrances when steeped in sake.² One day his wife reminded him of the approaching Lantern Festival of Bon. She said she was sorry she could not buy a new kimono for their eight-year-old son, whose name was Gennosuke. She also called his attention to the fact that a mask ordered three years ago by the Kanze school of actors, which had been partially paid for in advance, still remained unfinished. This time the mask-maker became serious even though still under the influence of liquor, and he began to work on the half-finished mask, brushing the dust away. After a few days of steady concentration, the mask representing a demoness burning with jealousy and anger was finished. The wife was even happier than the artist and sent the mask by the little boy to the Kanze school. The veteran actor, who was in the midst of a banquet, was pleased with the work, but he wondered if the mask had not been finished hastily in order that payment be made before the Lantern Festival. It would indeed be a disgrace for an eminent actor to wear a mask of crude workmanship, and the mask was smashed to pieces in the little messenger's presence. Gengoro killed himself soon afterwards by cutting his throat with one of his favourite chisels. He left a letter in which he said that he had to die, on account of the humiliation to which his work had been subjected by the actor. The memorable chisel was left as a memento to the son, to whom a pathetic message was addressed encouraging the little boy to work hard and become a great mask-maker worthy of

¹ The Spirit of Japanese Industry.

² Japanese drink.

the father. After twelve years of steady apprenticeship, Gennosuke, the young artist, became suddenly famous all over the city on account of a figure of Emma,¹ the King of Hell, which he had carved for a Buddhist temple. One day a messenger came from the actor who had humiliated his father, and the young man complied with the request to make mask representing the same demoness. It was to be used at the opening performance on the new stage built in the Shogan's Palace. Gennosuke set to work immediately by purifying himself and his father's old chisel. When the work was finished to his satisfaction, the young artist worshipped before his father's mortuary tablet and took the mask to the actor, now an old man with grey hair. Gennosuke was pleased when the actor invited him to be present at the rehearsal. When the actor wanted to take the mask off after the rehearsal, it remained stuck to his face. Repeating the posthumous Buddhist name of his father, the young man stripped the actor of the mask with both hands. The actor's face was found streaming with blood.

The aged actor prostrated himself before the young artist, who was asked to relate how he had attained his ambition. The actor, deeply touched by the impressive narrative, made up his mind to wear the mask in atonement at the public performance, at the risk of it sticking to his face permanently. The performance was a great success, and from that time on the aged actor did everything he could to improve the young man's economic standing.

In Gengoro's life as a mask-maker, the spiritual elements were more important than anything else, and he actually sacrificed his life to uphold his professional honour. Honour was indeed above life even for a mere craftsman, and in the pathetic story of his wife and son we get a glimpse of their professional honour.

(b) When a special mission came from Korea in the earlier part of the nineteenth century, the Shogun Iyenari decided to send some folding screens as souvenirs to the King through the Envoy. Yusen, whose pupil Hokusai is known better today, was one of the foremost artists selected to paint the screens. Yusen worked hard, of course, and his screen bearing "the Eight Views of Omi" was brought to the palace for inspection by high dignitaries. The picture was beautifully done with gold dust applied artistically to indicate the distance. Gold dust was thicker for the foreground, while the

¹ Yama.

composition was perfect with houses and trees exquisitely distributed. Abe, the Lord of Bungo, who was examining Yusen's work, bent his head a little to one side, and remarked that the gold dust was not used generously enough. Yusen, displeased with the criticism of an aristocratic amateur who expressed his opinion with such conceited air, stepped forward and said calmly, "I have done some little thinking in my attempt at giving a better idea of the distance. I applied more gold dust for the foreground and less for the background." The critic replied that the value of a painting depended on the onlooker's view, to which the artist retorted boldly, "Yes, but it also depends on the person who looks at the picture." In those feudal days it was extremely impudent for an artist to talk back in that way to a high dignitary of the Shogunate. The sarcastic remarks of the humiliated artist incensed the critic, and the verbal duel had to be continued. "What did you say?" demanded the infuriated aristocrat. "Do you mean to say that I am not a competent connoisseur?" "Pardon, My Lord," responded the artist calmly, "I would not say so, but I have nothing further to do with this painting." Yusen had made up his mind to sacrifice his life in order to uphold his professional honour. The Lord of Bungo then gave his verdict. "You are self-conceited, this picture as it is will not be accepted, work promptly on another painting and submit the new one to our inspection as soon as fished. Take this as my official order." The artist would not obey the command and said "In all ages, vulgar Philistines are incapable of appreciating the works of a foremost artist." Burning with the anger the official connoisseur told the artist to repeat what he had just said, for the insult was unpardonable. The stormy scene was finally over when Yusen adjusted his dress and made his exit, saying that he was suddenly taken ill and was unable to stay longer. On his way home, he committed harakiri in the palanquin. Yusen, the artist, was at stake and had the courage to sacrifice his life in a true Bushido fashion.

(c) Toward the close of the Tokugawa Shogunate in the middle of the nineteenth century, there was in the city of Yedo a first class carver, whose name was Hamano Kyozei. His family was noted for carvings of small size in ivory and wood. In spite of thorough practice for ten years subsequent to his father's death, which had taken place when he was twelve years old, young Kyozei was not worthy of succeeding the distinguished father, not being

ingenious by nature. Kyozei's carvings were not popular, and Yorozuya Shimbei was the only dealer in the city who was generous enough to buy his works. One day the young artist took to the dealer a comical piece of work which was supposed to represent a badger in the midst of his meditation. The figure did not look like a badger at all. In fact, it was nothing, and Yorozuya was so disgusted that he said a carving such as this was really a disgrace to Kyozei's father. Yorozuya told the young man to kill himself instead of continuing to reflect discredit upon the family name. The idea was, of course, to brace him up, but Kyozei who was of a conscientious disposition, took the admonition too seriously. When he came home, the young carver asked his invalid mother for leave of absence for a couple of years. The mother, who sensed what was in the son's mind, did not care to dissuade him. "Go and die, my dear," said she, "a fellow of weak will that intends to leave a sick mother would not be of much use, even though he were alive."

Realizing that he was forsaken even by his mother, the fain-hearted carver went into the kitchen to suspend a rope from the main beam. The mother, who made her appearance when the young man was about to hang himself, asked him to carve as a memento an image of Kwannon, the Goddess of Mercy, in whom she believed. He began to work early in the morning the following day, and worked steadily for three days and nights without stopping. The sacred image, into which Kyozei put his heart and soul was a splendid piece of work. "Well done!" said the mother with tears in her eyes "This work is worthy of your father." She told the son to take the image at once to Yorozuya and ask the dealer to buy it for forty pieces of silver.

The old man Yorozuya, who wondered if he had to pay for another carving supposed to represent a badger, was surprised to see a wonderimage of Kwannon. The work was so exquisite that Yorozuya suspected the image was a carving left by the young man's father. When the whole story was told, the price as named was paid ungrudgingly, and Yorozuya told the carver to go home immediately, adding that he might not find the mother alive.

Kyozei's mother, who was found dead upon his return, had left a letter reading as follows: "I was pleased with your new image of Kwannon. Please work harder and elevate our family name by improving your art."

Where Else Can You Find Such Honourable Workers?

SKILFUL LABOUR

Some persons (even in so-called higher circles) are never tired of repeating the statements of their mental masters that Japan's progress in industries is simply due to sweated labour and that the "Japanese are mere copyists and we have nothing to learn from them." I am quoting a very high Indian official who greeted me with the above remarks on the morning I landed in Japan to make a report on the Home Industries of Japan. He failed to discourage the author of *Secrets of Japan* who during his three years' stay in Japan had closely observed Japan's phenomenal rise in the industrial sphere. I asked him if he had seen a single home-factory and observed the skilful labourers at work. He was so prejudiced that he could only see 'through foreign eyes' and I gave him a copy of my book to reform his views, but he never showed any signs of a desire to learn the truth. He was too proud of his ignorance. I never discussed the subject with him again in two months until he left carrying all his ignorance with him.

TRAINED MECHANICS, SKILFUL LABOURERS

The truth is that Japanese labourers are highly trained mechanics and skilful labourers who really account for Japan's industrial progress. I will relate only two instances:—

(1) Steam locomotives used on Japanese railways are thoroughly overhauled every three years. Thirty years ago a complete overhaul used to take 30 days on an average. But the Japanese labourers developed their skill to such an extent within 15 years that the same work could be accomplished in five days. The work is done without increasing the number of workers. On the contrary, the labour required for this work has been reduced from 900 man days to less than 400 man days. Even American mechanical skill is not able to perform a similar work in less than 14 days, while in England and Germany it is said to take four weeks. Remember it takes five days in Japan!

RUSSIA LEARNS FROM JAPAN

The Indian official in Japan referred above thought we had nothing to learn from Japan but Russia did not think so. The Soviet Government sent a staff of railway engineers to Omiya Works

of the Department of Railways for the completion of their Five Year Plan. After a few months' stay at the town of Omiya, they returned to Russia and, by copying Japanese methods, they were able to shorten by half the number of days necessary for a complete overhaul of a locomotive which formerly used to take 45 days. The Russians could not shorten the period further. The Government of the U.S.S.R., being desirous of attaining the Japanese standard, approached the Japanese authorities with a view to obtaining the personal assistance of the engineer-in-chief of the Omiya Works. Consequently Chief Engineer Kato was despatched to Soviet Russia with a staff of assistants. Under his personal direction the time was shortened to seven days. But when the Japanese technicians left Russia, the Russians could not keep up the record. Now 11 days are required in Soviet Russia to overhaul a steam locomotive.¹

Let us forget the cheap jibe that Japan manufactures only cheap goods. Think of the Japanese made battleship (I am not in favour of war. I love peace but the difficulty is, there is no room for peace lovers in this blood-thirsty world. Remember the fate of Iran in the two great wars). Forget the Japanese battleships now sleeping in their graveyards at Manila, Cebu and other places. Think of Japan's locomotives. Japan's trains have the highest reputation for exactness of time schedules. Russia has recently ordered (June 1948) some locomotives from Japan, while we always go West!

BRITISH WERE AMAZED

Mr. Fujihara an industrial magnate of Japan relates this interesting story from his personal experiences about Japan's technical skill:—

“About ten years ago my Company (the biggest paper concern) placed an order with an English firm for a paper machine designed for a turnover of 1,000 feet per minute... It required engineering skill of a high order to set it up without a flaw. It was for this reason that the English firm insisted on despatching their own erection engineers accompanied by a few assistants. The English machine-builders did not have confidence in Japanese engineers, as might be expected, and wanted me to consent to paying for the service of erection in addition to bearing travel expenses. I was about to

¹ From an article entitled “Improvement in the management of working processes” by the committee on production management in the Government Bureau of Industrial Rationalisation.

accept the proposal and accordingly notified the plant where the new machine was to be installed. Contrary to my anticipation the plant manager replied that the Japanese engineers under him were confident that they were capable of setting up the machine. It was also pointed out to me that the whole thing was an important matter of honour and prestige for Japanese engineers. The English firm would not accept my counter-proposal to turn the job over to Japanese erectors, but our attitude was so uncompromising that they finally acquiesced. The Japanese engineers did the entire job."

"Shortly before the conclusion of the erection work at the mill an English engineer and his assistant came unexpectedly to see me in my Tokyo office. They confessed that they had to come over to Japan in spite of my cable message, because it was feared in England that the Japanese engineers might not do a decent job. Should the machine fail to turn out paper at 1,000 feet per minute as designed, the poor performance would certainly reflect discredit upon the machine-builders in England."

To cut the story short, the British engineers visited the plant and on return told Mr. Fujihara "The work of the Japanese erectors is perfect and there is not the slightest flaw in the job."

"At the farewell party given in his honour, the British engineer who was gloomy, remarked that Japan would not buy any more paper-machines from England. The Japanese are so clever, sighed my guest, that similar machines of splendid workmanship would soon be built in Japan. A decade has elapsed since and I recall the English engineer's prediction with mixed feelings," concludes Mr. Fujihara.¹

INVENTIVE GENIUS

No wonder Mr. Mauretta, Assistant Director of the International Labour Office in Geneva said: "Japanese workers are active, enthusiastic, happy and efficient. They are very intelligent people and I consider them to be the most valuable capital in the Japanese nation."² The workers in India (given proper training) have the same reputation. But one thing I notice in Japanese worker is his aspiration to higher places. He is always ambitious. He aspires to foremanship, engineership and so on. He is always trying to

¹ The Spirit of Japanese Industry, pp. 79-81.

² Japan Advertiser April 21, 1934. "Outline of the works" Amiya Works 1933.

make use of his born inventive skill and his ambition contributes in no small degree to the development of Japanese industry. Among the 2,000 employees of the Omiya Works of the Department of Railways, there are about 50 to 60 people every year who receive rewards for useful inventions or improvements. This factory has the following committees composed entirely of workmen:—

- (1) Mutual Enlightenment Committee. Its object is improvement of work in general and increase in efficiency.
 - (2) Economy Committee. Its object is to effect economy in materials, stationery, rational use of materials use of byproducts and idle stocks.
 - (3) Safety Committee aims at industrial safety.
 - (4) Works Committee aims at improvement in working methods and tools and machinery.
 - (5) Process Committee discusses time table and manner of work.
 - (6) Locomotive Committee
 - (7) Carriage and Van Committee
 - (8) Electric Committee
- } They look after construction and repairs of locomotives, carriages and rationalisation in the methods of repair.
- (9) Locomotives Overhaul Process Committee.

The workshop therefore serves not only as their source of bread but also as a laboratory to studious workmen who aspire to rise.

LOVE OF NATURE

The employers in Japan always encourage workers to develop love of Nature which exercises a healthy influence on the workers' efficiency. Every factory plants flowers and trees to satisfy workers' love of Nature. Workers are taken out on pilgrimages to distant temples or shrines, they climb mountains, bathe in hot water springs, go to rivers, lakes and spas and enjoy boating, fishing and swimming.

Most factories issue factory newspapers and periodicals. A page or two are devoted to contributions of poetry from the workers.

BENEVOLENT GOVERNMENT

The Government played a very important part in Japan's industrial progress. The Japanese Government brought samples of machinery from all parts of Europe and America. This was the most recent and precise "up-to-the-minute" kind. The Government

sent large numbers of promising youngmen abroad to study various industries for two to five years. Young professors and engineers were sent abroad in large numbers to study on the spot modern methods of production. They brought back with them text books and machinery beside the expert knowledge they had gained personally. Sometimes they would bring back two sets of machinery, one to run and the other to rot. They would try and see if they could reconstruct it, and if they succeeded in doing so, they would try to make improvements on it. The Government spent ungrudgingly on these experiments.

MODEL FACTORIES

Then 'model factories' were started at Government expense. Government would run these factories from five to ten years. After it was sure that the factory could be profitably operated, only then would it be handed over to private concerns. Most industries of basic importance in Japan, thriving today, owe their origin to Government guidance or government initiative according to Dr. Iwao Fujisawa whose lecture I heard before the war.

NO ILLITERATES IN MY COUNTRY

Mass literacy is another great secret of Japan's industrial success. Credit for this goes to the farsighted Emperor Meiji, who started a crusade against illiteracy eighty years ago.

The Emperor in a solemn vow declared:

"There shall not be a village with an illiterate family, nor a family with an ignorant member in this country." As a result of that vow Japan enjoys 99.58 per cent literacy today. I can never forget my first experience in Japan on the 12th of September 1933. I had landed the previous evening and had no news of Gandhiji's fast. I went to bed that evening early since I was tired. Next morning at 5-30 the sweeper woman in the hotel greeted me with "good morning" and the first question she asked me was "Do you know the latest about Mahatma Gandhi's health?" I said "No." I did not know but I was anxious to know. She replied, "He has broken his fast and he is out of danger." "How do you know?" I asked her. "Why, I have read my morning paper, I always do that before I start on my morning rounds." Who can beat that! It is this passion for knowledge that has made Japan literate in seventy years with the result that every worker can read about the latest scientific

inventions and new designs in his industry and rise to the highest post.

CHEAPEST TRANSPORT

The cost of transportation has an important bearing on the progress of industries.

The United States has an abundant supply of iron and coal, but the cost of transportation is an important item in shipping iron to New York from Pittsburgh. The rate of freight by rail per ton was 3.25 dollars before the war, *i.e.*, about eleven rupees per ton.

In Japan transport was much cheaper. Iron could be brought to Japan on steamships from the South Seas at 5 yen (four rupees pre-war price) per ton and from China and Manchuria at two to three rupees per ton. It will be seen, therefore, that so far as the cost of transportation is concerned, Japan is in a more advantageous position than the United States. It is expensive to ship other raw materials from the Atlantic seaboard to the Western States and *vice versa*. Lumber is cheap in Oregon (Western U.S.A.), but the freight charges make it expensive when shipped to the Eastern States. Owing to lower ocean freight between Scandinavia and New York, pulp produced in the Seattle (Western U.S.A.) area cannot meet the competition of European pulp on the Atlantic seaboard. It is true that the natural resources of a country constitute a great national asset, especially in time of war, but in the time of peace the United States, which is self-supporting in many respects, is not altogether better off industrially, because it is the cheap transport that decides the issue.

On the contrary, Japan, an island, can bring raw materials from any country at lower cost. Japan is poor in natural resources, but she has the geographical advantage of being situated near China, Manchuria and the South Sea Islands, which are rich in the raw materials needed in Japan, and with her cheap transport Japan could, before the war, import all raw materials at a very nominal cost. Cheap transport is a great blessing to Japan and so is cheap electricity (Read full story of electric power in another chapter).

DECENTRALISATION

Japan's industrial system is very ably organised by the Government of Japan. It is not centred in a few cities or urban areas but the rural areas contribute their full share in industrial progress since the system is based on decentralisation.

Discussing the importance of the decentralisation of industry, Professor John E. Orchard of Columbia University wrote in 1930¹ :—

Japan is especially well adapted to the decentralisation of industry. In our country also the same opportunity exists for the development of village manufacturing. The surplus of population is in the villages and it prefers to remain there. The farmers live in small communities, and the prevailing form of agriculture with its very small holdings creates both the spare time and the necessity for a subsidiary occupation. Japan is a country of short distances and raw materials and finished goods can be moved easily. There is abundance of water power and there are few sections of the country that are not within easy reach of a potential power site.

But the strongest argument for decentralisation is the fact that much of the Japanese industry is already in the villages and is carried on, for the most part in relatively small units. This rural industry is a heritage of the domestic manufacturing of the feudal period, but it may also be a forerunner of a new and saner industrial system that is destined to supplement, if not supplant, the ready made industrial order from the Occident. Even the new factory industries are showing some tendency to decentralise, for it is the policy of the large cottons spinning companies to establish branches not in crowded urban centres but in rural areas within easier reach of labour supply.

A CLASSLESS SOCIETY

As I have stated in another chapter the eighty million people of Japan behave as members of one family. There are very few distinctions between the rich and the poor. The rich are not vain, snobbish or untouchable. The Japanese are on the whole a classless society. The rich and the poor work together, eat together and enjoy together. I have attended dozens of functions where the multi-millionaire factory owners freely mixed and dined with their workers. Professor G. C. Allen writing on the subject concurs with my impressions when he says:—

“Japan presents a marked contrast (to England). The Westernisation of the country is, of course, creating classes that bear some resemblance to those in Europe, but emotional dispositions associated in Europe with those classes have not yet appeared in Japan.

¹ Japan's Economic Position, 1930, pp. 486-7.

Snobbery, though it exists, is not a prominent feature of life in that country. Intercourse between classes is easier than in England and there is much greater uniformity of manners. In a large English undertaking it is usual for the directors and higher executives to have one dining room, the clerical staff another, and the operatives a third. But it is quite common in Japan for everyone to sit down together in the same mess-room; frequently even separate tables are not provided for the officials and directors, who take any place that is available among their workers ... and it is not an exaggeration to say that from a social standpoint they are far more democratic than the Anglo-Saxon nations. There is no special provision of schools and colleges for different social classes as in England."

SKILLED AND CONTENTED LABOUR

I have visited Russia and almost all other European countries, America, and the East and if anything has specially impressed me in Japan, it is the cheerfulness, honesty, skill and contentment of the worker whether man or woman. Slums exist in London, New York and also in the industrial centres of Japan, but in Japan they are in much lesser numbers than in England and America. The slums of New York, and London are in some cases worse than those of Japan, but as a rule (of course, there are exceptions) Japanese labourers living in the slums are more contented, cheerful and honest than their counterparts anywhere else in the world. However there is great scope for improvement.

SECRET OF CONTENTMENT

The workers in Japan, especially in the textile mills (some of which I have personally seen) are generally contented because of the excellent treatment afforded to them by their employers.

Large dining halls with chairs and tables (having "ready lunch" boxes), up-to-date cinema and theatre halls, parks, neat and well-ventilated rooms (for residential quarters), free schools for education in literature and fine arts, such as painting, music, dancing, tea ceremony, up-to-date and well kept hospitals for labourers are some of the things that I have personally seen in labour areas in Japan. The free hospital for labourers that I saw in Kanegafuchi Mills in Kobe was decidedly much better in all respects than the former Civil Hospital in the capital of India. Any visitor to Japan can see things for himself and I would request the millowners of my

country to pay a visit to Japan and study the secrets of Japan's success instead of being misled by the false and interested propaganda of those who have been beaten by Japan in the industrial field.

When the millowners and industrialists of India visit Japan they will themselves realise that (1) honest and skilled labour, (2) kind treatment of the workers and (3) simple and inexpensive management are mainly responsible for Japan's industrial success.

It is true, no doubt, that labour in Japan is cheaper than in Western countries. The reader will ask how labour remains contented with low wages in Japan.

FAMILY SYSTEM

The secret lies in the family system which teaches co-operation and individual sacrifice for the common good of the family.

We must not forget in considering the life of workers in Japan, a peculiar circumstance hardly paralleled in any other country in the world. The family system is still a powerful basic factor in the daily life of the Japanese. In Japan the family system began with the history of the race. Not only in spiritual culture, but in economic development, the family or tribe always constituted the unit. With the Restoration of 1868 Japan adopted the modern industrial system and the development of liberalism in the Western sense of the term was remarkable, but this Westernisation of Japanese society has, in now ay, destroyed the family system which has been the foundation of the Japanese social system for over three thousand years. The new economic system founded on liberalism or individualism has been skilfully harmonised with the old family system, and there has been created a peculiar mode of life. Since the First World War, the economic system of Japan has rapidly developed into the most extreme form of capitalism. The daily life of labourers is, however, still controlled by the idea of the family unit. Their incomes and expenses are treated as problems of the family as a whole. Thus, in the case of the textile industry, which is the representative industry of Japan, a woman worker puts her wages into the pooled income of the family to which she belongs and gets her proper share with other members of the family. The same is the case with skilled men workers. Such a system enables many work-women and juvenile workers to serve in factories for wages below the ordinary level. In other words, women or juvenile workers who cannot keep themselves independent can do so in common

with the other members of the family. It is therefore erroneous to judge the standard of living of Japanese workers by the wages they get. The existence of the family system must always be taken into consideration in studying the life of the Japanese labouring class.

SIMPLE HOME LIFE

Now let me present the readers with opinions of responsible public men and the press on the subject of the "Simple Needs of the Japanese."

President Tsuda of the Kanegafuchi Company does not overstate the case in saying: "That the living conditions of the Japanese spinning workers are much better than in England, is admitted by all Englishmen who have personally inspected the conditions of the Japanese spinning industry. The only difference is in the mode of life in the two countries. In other words, it is the question of the difference between cheese and pickled radish, the latter being eaten in Japan in the same manner as cheese is in England," radishes being far cheaper than cheese. Developing this idea, another Japanese says: "Transplant a Japanese millhand to Lancashire, give him an iron bed with a soft mattress, but him on a ration of bread and butter, beef-steak, coffee and cream, and he will go on strike, demanding Japanese bedding spread on a matted floor, and a ration of fish, rice and vegetables which, to him, are more palatable and wholesome. It is the misfortune of the British or American millowner that his standard calls for higher-priced materials than the Japanese, that is all."

ENGLISHMAN'S VIEW

"Such advantages as Japan enjoys as a result of her depreciated yen may be short-lived," wrote the special correspondent of the *Spectator*, London, "but there will still remain permanent elements in her industrial fabric which will make her competition increasingly formidable for an indefinite period. One of these, of course, is the standard of living in Japan. To call it a low standard begs the question. It is Japan's standard, a standard with which she is satisfied, and it should be described less as low than as simple and inexpensive. Measured in terms of contentment, it would be hard to say that the Japanese workers lives on a lower standard, or leads a less agreeable life, than an English worker. Japanese labour is certainly not sweated or oppressed. Without any such stimulus the

average Japanese works hard and takes an interest in his job, and with a thoroughness which a competent observer acquainted with both countries sometimes misses in Lancashire. For better or worse, and in some respects no doubt it is for better, the average Englishman does not think of trade and industry as the chief business of life. The average Japanese and Chinese do, and the result is that the factory and the office in Japan or China is animated by a kind of convinced determination which is absent or deficient in Western countries."

UNITY OF PURPOSE

This "convinced determination" has been noted and emphasised — so far as Japanese industries are concerned — by such trained and unprejudiced observers as Messrs. Sansom and Kermode, attached to the British Embassy in Tokyo. In their report to their government they said:

"One cannot escape the impression of a rare unity of purpose and concerted effort. Such reflections as these may seem out of place in an economic report but it is difficult to understand the position and the prospects of Japan as a modern industrial state without appreciating the national spirit which shapes her activities. The industrial growth of Great Britain, and even of more deliberately organised states has been haphazard in comparison with the development of Japan, which has been the result of a policy aimed at making the Japanese Empire an economic unit as completely self-contained and self-supplying as physical limitations would permit. The assistance given to industry by the state in terms of money is of comparatively modest dimensions; and the principal form of government help is probably protection by import tariff. Apart from such measures, however, the Japanese Government is not backward in taking positive steps to direct the course of industry and trade by legislation. Thus in pursuance of a declared policy of 'rationalisation', a law for the control of staple industries was enacted in 1931, by which the competent Minister of State is empowered under certain conditions to force a minority persons engaged in a staple industry to participate in an agreement made by the remainder for the control of production or sales," the Minister usually exercising his authority to prevent overproduction and to increase the price of export instead of decreasing it. "In 1931 also, amendments were made in the laws governing manufacturers'

guilds and exporters' guilds. These guilds are composed principally of small-scale manufacturers and traders and the changes in question were made, to quote an official memorandum, 'in order to hasten the process of rationalisation.'

RATIONALISATION

"Rationalisation" is used in Japan to denote the application of carefully reasoned processes to every branch of industry, including, of course, sales programmes. Nine pages are devoted to it in the current issue of the *Japan Year Book*, from which a few citations may be useful in illuminating some of the secrets of Japan's industrial success:—

"Rationalisation, like one's ideal, can never be complete. The standardisation of equipment, machinery, tools, implements, etc., and the simplification of merchandise are known to form the basis of technical side of the rationalising process. It enables producers to reduce the costs of production through homogeneous mass production, economises expenses for the sellers by relieving them from carrying unnecessarily large stocks, and also by facilitating their transactions; while the consumers, too, are greatly benefited by being able to buy cheaply and make more accurate selection. For these reasons many countries have each a special organ devoted to this purpose of standardisation and simplification. In this country, a board to investigate the standardisation of industrial arts was established as early as 1921, and efforts have ever since been made to determine the best standards for any industry and to disseminate knowledge of and encourage the adoption of the standards thus determined. With the establishment of the Rationalisation Bureau, the work of this Investigation Board was brought under its jurisdiction. The number of standards so far fixed by the Board is 106. The result of their use and dissemination has been very satisfactory, the most conspicuous case being in Government works. The Yawata Iron Works, which hitherto manufactured 657 kinds of articles, has limited their number to 120 in conformity with the principle of homogeneous mass production. As a result, not only has the amount of steel manufactured there increased considerably, but the coal-consumption per ton of steel has been reduced, contributing to a great reduction in production costs. It may be added that the Board is a member of the International Standardisation Society, thus contributing to the stand-

ardising movement among nations.”

BETTER ORGANISATION

Rationalisation in Japan has been so successful that Dr. Arno S. Pearse, for many years General Secretary of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, with headquarters in Manchester, agrees with Mr. Moser of the United States in the view that no cotton mills anywhere are better organised and managed than in Japan.

Again, the Japanese method of mixing raw cotton of various staples so as to produce yarns or fabrics of various grades to meet the tastes and requirements of the countries to which they are shipped impressed Dr. Pearse as “an art of which the Japanese mill managers are justly proud.” “It is a secret jealously guarded by all mills,” writes Mr. K. K. Kawakami in *Foreign Affairs*. “The protection of the various materials in the mixture varies to harmonise with the local conditions of the purchasing countries. The Japanese mills endeavour to produce what the purchasers want, and not what they think the purchasers should like. That is why Japanese cotton goods have won new markets.”

EFFICIENT MANAGEMENT

That is one reason, but it is not the main reason. The main reason is to be found in efficient management and the use of down-to-the-minute equipment. This has already been emphasised. It is driven home by President Tsuda in a comparison with England. England has fifty million spindles, Japan some eight million, or only 16 per cent. Yet in 1933 Japan outdistanced England in cotton exports!

Recapitulating the factors in Japan's industrial success, we may strike out as false inferior goods, sweating, and dumping. Up-to-date equipment scientific management, including sales management, government supervision, and, above all, hard working, skilful and contented operatives, are other factors that contribute towards success.

Let me refer to an article by M. J. C. Balet in *Le Monde Nouveau* which strikingly confirms the above conclusions. He says: “People do not work and sell at a loss for long, and especially do not do so deliberately. To speak of Japanese dumping is nonsense. Not only does Japan not sell at a loss in relation to internal prices, but in fact her export prices are not lower than those of the internal market.

Moreover, her industrialists receive no subsidies. Japanese commercial success has much simpler causes, such as:— (1) The urgent necessity, first, of living, and next of assuring the future of a prolific race crowded into a poor and small archipelago; (2) A great national ideal served by unequalled discipline and will; (3) A marvellous sense for the assimilation and adaptation of the most perfect scientific processes."

"All these causes," he says, "will be insufficient to explain Japan's extraordinary success if we forget that besides all kinds of dumping (the work of men) there is also a social dumping (the work of centuries) which favours some countries to the detriment of others. This arises from the difference in living standards among different people. Generally, nations with low standards are behind high-standard nations with respect to science, production, and commerce. But let us suppose that a nation, while keeping a low standard of living, raises itself to a parity with the first nations of the world in power and civilisation. In industrial and commercial competition it will then have a superiority equal to the difference in the living standards. Such is precisely the case of Japan, a case without precedent in history. It is in this social dumping (which, however, grows less and less as the Japanese living standard gets nearer that of the nations which have been its model) that the fundamental reasons for Japanese expansion must be sought."

GENEVA OFFICIAL'S VIEW

Another French authority, M. Fernand Maurette, visited Japan in the spring of 1934 to observe industrial and labour conditions on behalf of the International Labour Bureau (at Geneva), of which he was vice-director. "I must say," he is reported to have said, "that my impressions have been very good. I have seen many factories, have observed conditions in them, and have discussed problems with competent government officials and labour leaders. I have found a very good spirit in the factories and among the workers. Japanese labour organisation and the rationalisation in the factories are impressive, but still more impressive, I have found, are the Japanese workers. Active, enthusiastic, happy and efficient, they are very intelligent people, and I consider them to be the most valuable capital in the Japanese nation. However, Japan's commercial expansion has raised the question of the Japanese standard of living. Western people do now know how the Japanese workers

live. The cost of living is cheaper here, but I do not see any low standard of living. And it is this fact — the high level of the Japanese worker and his living standard — that must be explained abroad more frankly and clearly by Japan.”

BRITISH INDUSTRIALIST'S TESTIMONY

Nothing can support my conclusions better than the frank statement of Sir Harry McGowan, K.B.E., Chairman and Managing Director of Imperial Chemical Industries, Ltd., in a recent article in the *Crown Colonist*.

The British industrialist's following opinion should serve as an eye opener to Indian millowners. He says:—

“There has probably never been a trade phenomenon which has developed so rapidly as Japanese competition. Four years ago it was hardly showing above the Eastern horizon, a little cloud no bigger than a man's hand, but now it has covered practically all the markets of the world. It may be interesting to consider for a moment what lies behind this development, and what has enabled Japan to develop a trade with such amazing speed and to undercut older established trade rivals so drastically. The driving force is supplied by Japan's need to sell goods abroad in order to maintain some equilibrium in her trade balance. Her rapidly growing population make it imperative for her to sell more goods abroad. The second factor is the depreciation of the yen. Originally forced on her by necessity, a depreciated currency has advantages which Japan has not been slow to recognise. As we know in Great Britain, the depreciation of the £ sterling, following the abandonment of the gold standard, enabled us to recover a substantial part of the international trade we had lost during the preceding year when the £ was over-valued. Roughly speaking, the £ was depreciated in those days by about 35 per cent., but Japan has outbid us in competitive exchange depreciation, and the yen now stands at a gold discount of 63 per cent., without any guarantee that it will not go lower.”

EFFICIENT ORGANISATION

“The next important factor is the efficient organisation of those Japanese industries around which competition principally centres, and the deliberate planning of her export campaign. Japan industrially is a new country, which has sprung almost fully armed,

into the industrial arena. She has, therefore, been able to build factories on the latest plan, incorporating the most modern machinery, and in short, to pick and choose among international industrial practices, and adopt that which was best suited to her needs. She has shown great wisdom in buying only the finest and most up-to-date types of machinery. She has organised her industries in large-scale units. Further, she has evolved a system of industrial and Government co-operation in the conduct of export campaigns, by which means the advantages of exchange depreciation and efficient production was translated into concerted efforts overseas."

HAPPY WORKERS

"There has been much loose talk of long hours and low wages in Japanese industry. It is true the Japanese work long hours. It is true also that their standard of living is lower to our Western eyes. But while I was in Japan last winter, I made a tour through Japanese factories and was able to find no outward signs of malnutrition, lack of physical energy or discontent among the workers, which might be expected to be evident were they really overworked or under-nourished. As the Japanese ambassador said the other day, though the Japanese worker does not eat roast beef and potatoes, he would not choose them were he able to afford them. The Japanese worker keeps fit and happy on his — to our minds inadequate — ration of fish, rice and vegetables."

BUSINESS METHODS

"There is one more factor which makes for Japan's success, and that is her realisation that the needs of the present age are for goods where price is more important than quality. In a time of world depression, price is the decisive factor in purchasing. Japan has realised this more than any other nation. Her manufacturers and merchants have also realised the necessity of studying the needs of individual markets, and have been at considerable pains to give each customer what he wants at the time and place that is wanted and patterned, designed and packed in a manner to please his particular fancy. The Japanese deserve credit as pioneers. They study the customer's demand for prompt and even immediate delivery, they quote in his own language and not Japanese, and express units of quantity and price in the measurements of his country and not their own.

The strength of Japanese competition lies in the interdependence of these factors. It is impossible to say which of them counts most, since they are all co-ordinated to produce the desired result. How far they have succeeded we already know."

WHAT BRITISH MISSION FOUND

Here is a summary of the British Industrial Mission's report, reproduced from the *Times*, London:—

On the question whether the success of Japanese industry is due to the level of wages and the conditions of work, the report says:—

"Japanese wages are low in terms of money as compared with those paid in, say, Great Britain. It is, however, not the money wages which count but the question whether the wages received enable the workman to satisfy his requirements and to live the life he desires. In considering the standard of life in Japan as compared with that of western countries, there is one point above all which must be borne in mind — namely, that the standard in Japan is totally different in nature...."

"The question for the future is: Will a standard of life approximately similar to that which exists today continue to satisfy the work people of Japan, or will there be within measurable time a serious rise in the cost of labour? Our own opinion is that as the industrial activities of Japan develop, new desires will be created which will tend towards a higher level of wages, but that this process will be gradual and is not likely substantially to affect the competitive power of Japan for some years to come in normal circumstances. There are certain quite definite factors which operate in favour of the retention of low money wages in Japan."

CONDITIONS DIFFER

"Although the conditions of factory labour in Japan cannot compare with the more expensive standard prevailing in Great Britain, it is a mistake," the report says, "to consider them as a whole unsatisfactory from the point of view of the Japanese workman. The above remarks, both as regards wages and conditions of labour, refer to the factory industries of Japan. We are well aware that in addition to the factories there is a large part of Japanese industry, especially in the lighter trades, which is carried on in the homes of the people. We had no opportunity of investigating this for ourselves, but we were informed that conditions in these home

industries are very far from satisfactory, and that they represent a factor in Japanese economic life, free from factory regulations, which tends to depress both the level of wages and the standard of life of the whole economic organisation.

“One advantage that Japanese industry has over British, it is remarked, is that the per capita burden of public debt in Japan at present is extremely small compared with that in Great Britain. Another cause which has contributed to Japanese industrial progress is the rapid spread of rationalisation and co-operation in buying, manufacturing and selling.”

NATIONAL SPIRIT

Of all the secrets one that impresses a foreigner most is the Japanese national spirit.

To illustrate this spirit prevailing in Japanese industry I may quote a few passages from the Factory Rules published by a bicycle factory.¹

Song of the One Heart Band (Ishindan)

XYZ Bicycle Factory.¹ (Literal translation from the Japanese)

However overwhelmingly the wages of the world's seas

May come on like flooding tides,

The One Heart Band'll rouse itself, sturdy as a rock,

With its iron arms of co-operation.

With the power of righteousness and the heart of chivalry,

Helping the weak and holding the strong,

Our brotherhood goes even through fire and water,

Of which the One Heart Band is proud before the world.

Looking forward to a Utopia of co-existence

Where our noble ideal is attainable,

Lo! the One Heart Band'll shine for ever

Gloriously with its glaring zeal.

Then follows 'The General Plan' of the XYZ Concern:

We, with a view to assisting national industrialisation, shall try to develop social enterprises by the brotherhood organisation of the working masses.

We, with a view to promoting the interests of the consumers at large, shall primarily aim at establishing a most rationalised system of producing and distributing bicycles.

¹ Made in Japan.

We shall try fully to protect the interests of each member of our concern and secure him or her an appropriate means of living.

We, with a view to promoting the common interest of our factory, distributing stations and agents, shall try to realise the unification of the whole enterprise as one and the same heat and body.

Each member shall try intently to promote the interest of all members and shall never forget the demands of the whole body. No member shall do anything against the interest of the whole.

We, with a view to continuously strengthening the position of all members, shall aim at establishing a rational system of (consumers' or employees'?) credit as early as possible.



“The three keys to understanding of Japan and the Japanese are Buddhism, Confucianism and Feudalism. Buddhism, is the pattern of thinking, Confucianism is the pattern of action, and Feudalism is the pattern of social structure”

— Dr. K. Watanabe



“If Buddhism is taken out of our thinking, nothing will be left”

— Dr. K. Watanabe



CHAPTER VII

SAVIOURS OF JAPAN

Women are the main driving force of Japan's industrial revolution so far as labor is concerned.

DR. JAMES A. B. SCHERER

* * * *

More than 20 million female hands (ten million women) are working for the rapid recovery of Japan's national economy.

In no other country in the world you can find so hardworking, self-sacrificing and yet uncomplaining and ever-smiling women as you meet in Japan. I adore their spirit of sacrifice and admire and envy their cheerfulness. They produce 80 per cent of those fine textiles that people love to buy. They serve the whole nation in hotels, restaurants, cafes, cinemas, theatres, geisha houses, department stores, buses, tramways, and at every place they greet you with a smile and say "arigato" (thanks) before you leave the place.

Whenever and wherever I come across a Japanese woman in her true oriental culture, I bow to her in respect, and I think of the ancient Indian ideal of womanhood. I find no difference in the general appearance, behaviour, politeness, sweetness and motherly affection of a Japanese and an Indian woman. And why should there be any difference when the source of culture is the same?

EMBODIMENT OF SACRIFICE

An Oriental woman is the very embodiment of sacrifice, piety and nobility

The woman in the Orient virtually rules over her children and wields tremendous influence over them. In Japan women do not know what is individualism. They live and earn for the family and they die for it when need be. Their love for their children,

their respect towards parents and devotion to husbands are admirable.

The Japanese ideal of the woman's life is exactly the same as ordained by Manu, the Hindu law giver.

IDEALS NOT WRONG

It is true that women in some Oriental countries are not generally granted equal rights and in several cases injustice is done to them by selfish and ignorant husbands, but this does not mean that the ancient ideals are wrong.

The history of India and Japan shows that women had equal rights with men from ancient times. They were not only scholars, philosophers, poets, artists and warriors, but also ably ruled their countries for decades.

A FEW EXAMPLES

Who in India does not know the names of Maharani Holkar, the Rani of Jhansi, Nurjehan and Razia Begum. Indian history has many stories of brave warrior women of different parts of the country. Space does not allow any detailed mention of such brave and noble daughters of India.

Similarly, Japan too accorded a very high place to women in ancient days. There were many Empresses of Japan. Empress Jingo, according to Japanese history, led armies to conquer Korea. History records ten officially recognised Empresses of Japan, but since 1889 law has prohibited women from ascending the Throne.

Of the eight rulers of the brilliant Nara period four were women, one of whom, Empress Koken, ruled with a stern hand. In ancient days men and women were almost equally educated and stood on terms of perfect social equality both in India and in Japan but the situation in both countries deteriorated. Manu, the Hindu law-giver, said "Paradise is the home where women are honoured and happy." Time is not far off when India and Japan will follow this ideal.

SUBJUGATION OF WOMEN

The subjugation of women was a feature of the reign of Confucianism emphasised by the first Tokugawa Shogun, Iyeyasu. Its leading exponent was Kaibara Ekken, whose Greater Learning for Women taught that "a woman should look on her husband as if he were heaven itself, and never weary of thinking how she may

yield to her husband, and thus escape celestial castigation."

Among "seven reasons for divorce" this worthy included "disobedience to father-in-law, failure to bear children, jealousy, and talking overmuch or prattling."

GOOD DAYS FOR WOMEN

When the Tokugawa yoke was thrown off and the Meiji period ushered in, one of the most noteworthy acts of the young Emperor was the Rescript of 1871, which among other startling innovations emphasised the desirability of wives, daughters, and sisters accompanying the nobles who went abroad, so that they may "see for themselves, how, in the lands they visit, women receive their education." This Rescript has now been removed from the code of education in Japan as undemocratic.

Enlightened and far-reaching was the Imperial patronage accorded to five little "ambassadors" — Japanese girls sent over to America in 1871 — to grow up in American ways and bring back whatever good they might find to the rising generation of Japanese women. "Before leaving home they were summoned to Tokyo, and in testimony of the goodwill of the Mikado, and according to an ancient custom, they were each presented, by the attendants at the Court with beautiful specimens of crimson crepe, and an order was issued that their expenses while in America should be paid by the Government."

Ume Tsuda, youngest of the group — only seven — ultimately founded in Tokyo the women's college of English that has done so much for Japanese womanhood. Surely an "enlightened government" never proved its title better than by acts like these.

But it took a long time even to begin to undo the two and a half centuries of Tokugawa oppression. Not until twenty years after the Restoration were the personal rights of women recognised in the national statutes. By the revision of the Civil Law in 1898 polygamy was made illegal. To force woman to marry against her will was also forbidden. Women over the age of twenty-five were given the right to marry men of their own choice, even without the consent of the head of the family. Women were allowed to possess property of their own. Married women, with the permission of their husbands, were allowed to engage in business of their own. These were the main points in the new law by which women were accorded rights which, though still less than those of their men-folk,

had hitherto been withheld altogether.

ENJOY EQUAL RIGHTS

Ten years later the first women's organisation was formed, the Women's Patriotic Association, which once had a membership of nearly a million. By 1919 such organisations had become so numerous that their federation now represents several million members. This originated with the Blue Stocking Club (Seitoshu), which soon lost public sympathy through imprudent conduct, and was disbanded. The New Women's Society (Shinfujin Kyokai), organised in 1920, was a serious group of politically-minded women with a lasting influence. Although it disappeared as such, from it sprang five new bodies, whose fine service in the great earthquake of 1923 did more for feminism than everything else put together. "Women of Tokyo of all shades were united in a common cause, and they realised that they were handicapped at all turns on account of their lack of political rights. In the next year the Women's Suffrage League was formed, and by means of lectures, distribution of pamphlets, and wide circulation of a large number of women's magazines, the aims and objects of those working for feminine rights were made known to an ever increasing number of women throughout the country." Today, thanks to General MacArthur, women enjoy equal rights with men and more than a dozen women are in Parliament.

CHANGING WOMEN OF JAPAN

Of the revolutionary changes of the mode of life that have occurred since the great earthquake and fire in Tokyo, the most remarkable are those in women's dress and deportment. Compared with the sudden changes in the mode of life of Japanese women in the past ten years, those of Japanese men have been slow.

In the photographs carried home by foreigners as materials for the study of the manners and customs of Japanese women from the end of the Tokugawa Shogunate to about 1905, or the Russo-Japanese War period, every woman, irrespective of her social class or occupation, appears with her hands concealed in her sleeves. This appears to have been a set pose then. But this pose was not assumed in front of the camera alone. When they walked along the road, they used to keep their hands as much out of sight as possible. The Japanese woman's feeling of shame to have her hands exposed was,

of course, due to the lingering of feudal morals which forbade her working out of doors like men and declared it to be the most refined virtue of a woman not to look like a manual worker but to devote herself to the management of household affairs, to the education of her children and to the assistance of her husband.

After the Russo-Japanese War, as Japan grew into an industrial country by leaps and bounds, however, Japanese women, in spite of such training, came to find it no longer bearable to wrap their hands in their sleeves. Generally speaking, every social change develops far ahead of law and morals, and not until the last moment does the latter surrender to the former. So long as Japan was a country of raw materials and manual labour, she was surely a dream land of the East. The preparations for making Japan into an industrial country were started in the year 1894 which saw the revision of treaties, and were completed in 1905 when the Russo-Japanese War was fought. In other words, the Russo-Japanese War became an occasion for Japan to start on an industrial career at a tremendous speed.

With the industrialisation of Japan, there arose in every labour market a demand for the hands of women. For, of course, women's hands were cheap and pliant. Mechanised factories no longer required the expensive and strong hands of men.

It goes without saying that the hands of women thus required at first by the labour market were not those of the daughters of rich families. But society is an organism, and if a great change takes place in a part of it, it never fails, sooner or later, to affect the whole. The fact that the girls of the lower classes came to be in good demand in the labour market soon began to work an extremely delicate, but very significant change in the daily life of the daughters of the upper classes.

From the last years of the Meiji Era to the beginning of the Taisho, there developed a great desire for reading among women, and many magazines for women, with circulations of hundreds of thousands appeared. As a rule, the first pages of these magazines were filled with photographs of pretty women of good families. Some of them went so far as to specialise in publishing these portraits.

On looking at the manners of these ladies and daughters through the photogravures inserted in the first pages of these magazines, our eyes are caught first of all by the fact that they are holding both their hands out quite freely. In those days, foreign style clothes

were not so popular as today. As for hair dressing, too, despite a certain vogue of general foreign styles, there were no waves or bobs to be seen, although I fear even in Western countries, these coiffures may have come into fashion quite recently. They wore old-fashioned garments with long sleeves and printed skirts, but both their hands were laid bare without the slightest reserve. This is an interesting fact that symbolises the changes in the mode of life of Japanese women.

FEMALE EDUCATION

Female education in Japan was started at first with the object of training girls not into individuals on an equal footing with men, but not ideal housewives and model mothers, so much so that the progressive principal of a girls' school had to be strictly careful, for the safety of his position, not to inspire his students, ignoring the principle of "good wives and wise mothers," with the consciousness of their being individuals equal to men, or to declare openly his intention of giving instruction in sciences and arts on the basis of this consciousness. If the principal went so far as to profess without scruple such an educational principle, he was viewed suspiciously by the public as well as by the authorities as being against the good manners and customs of the family system peculiar to this country. Such was the actual situation of female education which continued in Japan until the last year of the Meiji Era.

In spite of the endeavours, however, of conservative people both within and outside government circles to restrict thus female education to the limit expressed in the principle of "good wives and wise mothers," the unrestrained development of social conditions was breaking their cherished desires. What were these social conditions? They were the fact that, in consequence of the increasing difficulty in earning a livelihood, the age at which men took wives was being delayed year after year. Until about the time of the Sino-Japanese War, no man of twenty-five or twenty-six remained unmarried. After the Russo-Japanese War, at the end of Meiji Era, however, it had become the general rule among men not to take wives until they had got on the wrong side of thirty. Education had been strictly devoted to the principle of "good wives and wise mothers," but the ironical fact was that the demand for "good wives and wise mothers" was noticeably on the decrease, with the result that multitudes of women, with the doors of mat-

rimony shut against them, began to push forward into a labour market, invading the field of men more and more every year.

This made a vicious circle. As women encroached upon the working realm of men, making it harder for men to secure employment and causing their salaries to be lowered, they did not take wives even though they had reached the age of thirty or thirty-five. Owing to the annual decrease in the number of men perfectly prepared for married life, girls crowded on to the working front, having been locked out matrimonially. As this vicious circle moved round and round during about a decade after the Russo-Japanese War, the golden principle of "good wives and wise mothers," that had been the basis of female education, had been withdrawn. Today it has become quite a matter of course that women too should be inspired by the self-consciousness that they are human beings equal to men and be given practical courses in sciences and arts on the basis of that realisation. Today there are women directors of hospitals, women officials, professors, judges and lawyers, in fact every profession is open to women. The ideology of the principle of "good wives and wise mothers" has at last had to be qualified by social and economical factors.

Until the last year of the Meiji Era when the principle of "good wives and wise mothers" was still strictly observed, severe restrictions were put upon book reading and bodily exercises for women. Women were to select and read such books as were suited peculiarly to women. For women to make their learning publicly known, to take part in debates or exchange views with men were considered incompatible with their position as "good wives and wise mothers." Restrictions which now appear quite unbelievable were then imposed on the women of Japan. For a woman to read books or newspapers in trams or trains was considered a disgustingly impertinent act. In those days, when a woman of the middle or lower classes embarked upon a working career, her job was to be such as to be suitable for women, as far as possible. Jobs that might deprive women of their gracefulness and gentleness had to be avoided. Work which might affect adversely the mission of the fair sex in life — maternity — was not to be assigned to women. These views were voiced rather extensively by the so-called intelligentsia of those days.

On the other hand, however, as the policy of physical education in girls' schools and other institutions was altered year after year

and the old restrictions put upon the bodily exercises and games for women were removed one by one, the physique of Japanese women improved at a marvellous rate. Now that the physical constitution of women had improved so rapidly, it became impossible to judge their ability by the old standards, and so there remained little distinction between the working scope of women and men, as is the case today.

GREAT WAR HELPS

It may not be necessary to illustrate in detail what remarkable influence was exerted, spiritually and materially, upon the civilisation of Japan by the measures taken by the European Powers when they were involved in the maelstrom of 1914. As the Great War went on, the Japanese nation was moved deeply and intensely by the emergency measures adopted by the European Powers. The dangers arising out of their conservative outlook on national life became more and more clear to the Japanese. The nation was profoundly impressed with the idea of "mobilising the whole nation." Except for its experiences at the time of the Sino-Japanese and the Russo-Japanese Wars, Japan had no great experience of national crises. The Japanese nation firmly believed that an efficient standing army supported by the patriotism of the whole nation was enough for any country to defy foreign invasion and retain its independence. However, the state of affairs that developed in the belligerent countries during World War I taught Japan more eloquently than anything else that her ideas should be fundamentally revised.

It became crystal clear to the Japanese that in national emergencies mere mobilisation of a portion of the nation alone will not avail much. National security needed the close co-operation and active participation of all, both men and women.

GOVERNMENT'S POLICY CHANGED

And so sometime between the fifth and seventh years of Taisho, *i.e.* 1916 to 1918 — a radical reform was effected in the administrative policy of government offices, which a writer calls "the silent revolution of Taisho." Of the items of this "silent revolution," the most remarkable were the establishment of social administration and the drastic reform of female education, particularly in its physical educational aspect. According to the Asahi there had been no social administration in the strict sense of the words in Japan

until then. The authorities had treated social politics, socialism and communism alike as "dangerous ideas." Even after the outbreak of the Great War, they did not cease to regard a general election as a "dangerous idea." It was between 1916 and 1918 that what seemed like a social administration was initiated in Japan.

The object lesson of the Great War, even the die-hards could not help learning. And they realised that in case of future national emergency, when there arose the necessity to mobilise the whole nation, women should share with men the responsibility for discharging whatever duties that might fall on them according to the mobilisation plan. Of course there existed the slogan of "the unanimity of the whole Empire," and not seldom women too had taken part in exceptional duties in times of war, such as serving in garrison hospitals as nurses, assisting in sending out munitions or aiding the families of soldiers at the front, but those had been services so graceful and gentle that they strictly remained within the limits of the specific character and capacity of the gentler sex. It was a role quite beyond the old pale of "womanly" characteristics that the Japanese women were called upon to play under the new national mobilisation plan drawn up in accordance with the object lesson of the Great War.

Thus the fundamental policy of female education in Japan was tacitly altered, facts having completely beaten arguments of right or wrong. It must not however be overlooked, that the circumstances in which increasing numbers of young women locked out of matrimony were crowding to the labour front year after year, went some length in bringing about the change. And those educational restrictions of "women within the limits of womanliness," which still existed in matters of physical as well as mental training in this country from the end of the Meiji Era into the earlier days of Taisho, were silently removed.

EARTHQUAKE THE TURNING POINT¹

The real turning point in the lives of the women of Nippon was the great earthquake of 1923. Following this national catastrophe which necessitated the adoption of a new mode of living, many girls and women began entering business and commercial offices heretofore closed to them. They were mobilised in the

¹ N. C. Herald.

national emergency, for every available adult man or woman was needed in the gigantic task of reconstructing the vast devastated areas.

Just as the World War gave the women of America and Europe an opportunity to enter the men's sphere of business and industry, so the earthquake of 1923 in Japan afforded the women and girls of the land of demure kimono-clad women, whose place until then was strictly in the home, an opportunity to penetrate into their husbands' and brothers' domain.

Upon taking positions in offices the Japanese women soon discovered that it was too expensive to wear their elaborate and costly kimonos in the battered, quake-shaken temporary business offices. Many women and girls, consequently, adopted the more practical European mode of attire, and with this apparel came, naturally, coating of imported facial cream, a dab of rouge and lipstick and the clipping, in some instances, of tresses.

What was more important, the women liked their new surroundings. Once established in offices, they have been averse to surrendering their newly acquired "rights."

Such in brief is the history of a silent revolution among the daughters of Japan.

CRAZE FOR MODERNISM

The fair sex in Japan is caught neck deep in the tide of craze for modernism. Lipstick, rouge and bobbed hair — current fashions in the West — are rapidly making headway in Japan and I wonder why the Japanese have gone mad after the craze for Westernism. But I have faith in the wisdom and foresight of the right-thinking people of Japan.

NO CAUSE FOR ALARM

The people of Japan have a great reputation for making the best use of everything foreign and though outwardly they seem to be Westernized, they are in spirit 100 per cent Japanese. In their offices they use foreign dress, but at home every person from the Prime Minister to the labourer uses his kimono, the national dress of Japan, and hence there is no cause for alarm that Japan will ever become completely Westernized.

As one who does not like too much Westernization, I am glad to note the deep love among the Japanese women for Japanese

dress and manners, inspite of their using Western dresses.

There are, for instance, women leaders who appear before large audiences in the most grotesque foreign apparel although their wardrobes may be filled with gorgeous kimonos. There are daughters of the rich and near-rich who would look far better in their charming national costume than they do in ill-cut Western garbs.

TIDE OF WESTERNISM

If one were to visit Tokyo today one would be astonished during even so brief a stay as a week to perceive the constantly increasing number of girls and young women who are casting aside their traditional customs for Western ways of living. The increase in the number of girls who are, for instance, discarding their native dresses and appearing in foreign costumes is so noticeable at present that few visitors have failed to observe and comment on this phase of changing Japan.

What is more important, the change that is taking place is not confined to outward aspects alone. Fundamental and through-going changes are taking place in the minds of Nippon's young women and girls though this naturally may not be apparent to any new-comers to the country.

On the Ginza in Tokyo, which corresponds to Chandni Chauk in Delhi, on any fair day or evening, one will note that more than 80% of girls are attired at present in European dresses, whereas a few years ago hardly more than one in ten dared to venture out in such attire for fear of being dubbed a brazen modernist. Scarcity of cloth due to war has added to the speed of Westernization and I found very few kimonos on the Ginza this year.

POPULAR GIRLS

"Moga" (Japanese term for modern girl) is fast becoming popular in the cities of Japan. The men of Japan are no longer charmed by the once-popular type of quaint oblong faces to be seen in the old Japanese colour prints. The type of Japanese girls who is popular today should have eyes that do not resemble almonds, who does her hair according to the accredited Hollywood fashion and who uses rouge, rather than those who paint their faces deathly white and were strange, picturesque headgear as was the custom in Japan in centuries past.

Before the Occupation there were so few American and European girls and women in Japan that the ordinary Japanese girl modelled herself mainly after American screen types. Joan Crawford, Constance Bennett, Kay Francis and Carole Lombard were the favourite patterns of Japan's flappers.

It may seem strange, but it is true that imitating the posture, the movements, especially the gait of their favourite stars, are among the most important ways in which a Japanese girl, brought up in clattering wooden clogs, manages to acquire the proper walking habit of the Western woman. Now Tokyo is full of glamour girls from America and Japanese girls are aping them.¹

MEANING OF LOVE

But affecting a comely gait is not the only thing the girls of Japan are learning from American motion pictures and American girls. They have, for instance, learned the Western meaning of love. Kissing is becoming popular among the youth. The consequence has been disastrous, at least to the parents of the girls. For most mothers and fathers in the land of Madame Butterfly still adhere to the ancient notion that marriages should be arranged not by the principals, but by sedate outsiders with balanced ideas of the merits and demerits of the respective parties.

So widespread, however, has the influence exerted by the West been on the life of the people of Japan that the protests of the older people are being brushed aside with great abandon and new customs adopted literally overnight.

BENEFITS OF WESTERNISM

Several Japanese thinkers believe that the Westernization of the Japanese women has been to the nation's benefit. Since doffing the kimono and donning the Western dresses their physique has improved considerably. The kimono restricted movement and stunted the physical development of the girls.

Now that the kimono is being discarded for the Western attire which affords freer movement, the girls are able to participate in strenuous athletic exercises and games which serve to develop their physique.

¹ An American General told me that he liked to see Japanese women in their national dress which suits them far better than Western clothes meant for taller women of the west.

EVOLVING NEW TYPE

The modern girls of Japan are evolving a type of Oriental charm that cannot be branded as a simple and direct imitation. And it is for this reason that judges of the beauty contests in Tokyo are confident that the prize winners in Japan can be favourably compared with those of other countries. They will not be a mere Westernized example of Oriental beauty, but a harmonised product with the best features of the two hemispheres brought together. No wonder some high American officers stationed in Japan prefer to have modern Japanese girls as their secretaries despite heart-burning among the American girls proud of their charms.

"WESTERNISM IS CHEAPER"

In Tokyo bobbed hair is becoming common and most of the shop assistants, typists and working girls are abandoning the kimono for the Western dress. The idea underlying, as stated by promoters of Westernism in Japan, is that the Japanese custom is utterly impracticable for city life and is far dearer than the modern dress. (Kyoto — the ancient capital — still preserves the ancient dress and manners too).

A woman needs a number of kimonos — the pattern varies with each season of the year — and apart from the obi, or sash, each outfit calls for so many accessories that quite a cheap costume costs much more than Western clothes. Today it is an economic necessity to fashion woman's clothes after the Western model.

A GAIN IN HEIGHT

Investigations conducted by the Ministry of Home Affairs reveal the startling fact that girls between fourteen and nineteen years of age today have gained an average in height between an inch and an inch and one-fifth over those of a generation ago.

It is, of course, between these ages that the girls go in mostly for outdoor sports and, as evidence of the great advance that has been made in Japan of recent years in athletics, mention might be made that Japanese girls are now competing in international athletic contests.

Probably the greatest transformation in the outward appearance of the girls of Nippon has been in their coiffure. This is due to the fact that the Japanese mode of hairdressing is the direct opposite

in all particulars to that of America and Europe.

For instance, the first requisite in Western coiffure is to have the hair in curls and waves which is an abomination in Japanese hairdressing. A lock or two hanging gracefully over the cheek in a ring is regarded as a sign of beauty in the West, but is decidedly intolerable in Japan.

Again, golden tresses are an incomparable treasure in Western hairdressing, while anything but glossy raven-black hair is objectionable to the old type of Japanese coiffure. Oil is used lavishly in the setting of Japanese coiffure, while in the West as little oil as possible is employed.

The disappearance of the old form of hairdressing, therefore, has brought about a startling change in the appearance of the Japanese girl and has, in fact, even made it necessary to alter the standard of her beauty. With the olden type of coiffure, a long, narrow face was essential. With the Western form of hairdressing the more roundish type of face is ideal.

However, London, Hollywood and Paris fashions in coiffure must be considerably remodelled before they can be made to harmonise with the general appearance of the Japanese girl. This is also true of other adaptations.

MODERN GIRLS

No street scene is more impressive to the thoughtful observer today than one of these "moga" ("modern girl") walking, alongside her mother. As Dr. Faust says, "The old idea that grace is found in weakness is being driven out of Japan. Japan knows that if she desires to have strong sons she must first have strong mothers." She is getting them, and that without loss of charm. Skiing is immensely popular in "the Japanese Alps." Young women go in for all sorts of competitive sports. Miss Kinue Hitomi will be remembered as a great runner in the Olympics, who later sacrificed her life through over-exertion at Prague. Girls even race motorcars, pilot aeroplanes, and descend from the sky in parachutes. And modern geisha plays baseball!

Mr. Uenoda, in his delightful little book "Japan and Jazz," has good words for the "moga". He says:—

"In former days a girl ate little, talked blushinglly, and rarely laughed in the presence of strangers for fear she might be regarded as unwomanly. In those days a girl with a long

face known as urizane-ago (resembling the shape of a melon seed) and a small mouth was considered the finest type of feminine beauty. Such facial beauty nowadays has no market. It is the interesting face lighted with sparkling intelligence that has begun to appeal. Today the city girl talks heartily, eats enormously, and laughs merrily. The long-faced and small-mouthed solemn beauty of the mid Meiji Era has died of starvation.

"Who is this 'moga' and what is she, gaining so much notoriety in newspaper columns and social gossip? To say that the modern girl is a kind of girl who will do anything she pleases is too sweeping a statement. Bobbed hair and foreign dress are only part of the modern girl. That the modern girl is a vamp is a fable. She is neither a man-killer nor a man-eater.

"As a matter of fact, the modern Japanese girl is a timid creature, almost as timid as any other girl. The allegation that she is bold and challenging to man is an exaggeration. It must be remembered that respectability in the feudal sense of the word still counts for everything in Japan., where the family is the unit of national life. The respectability of one's family and its members is of prime importance. In America, a girl of working age may find an advertisement in the 'ad' page, and off she goes to apply for it. In a few hours she returns home having obtained what she wanted, and begins work the next day. This is hardly the case in this country. In order to get even the meanest job a girl is required to submit her personal history. To keep a good name for herself and her family is one of her greatest concerns."

SUPREME SACRIFICE

What interests me more in the women of Japan is their spirit of sacrifice. I dare say that Japan's industrial success owes more than fifty per cent to the sacrifice of its sacrificing daughters. In India, a daughter is, in some places, regarded as a burden, but in Japan everywhere she is a blessing to her parents. Their spirit of love for parents is wonderfully noble. Every year hundreds of girls used to sell themselves to feed their starving parents, who were victims of poor economic conditions in agriculture. Now the practice has been abolished by law. Girls are the saviours of Japan. Take, for instance, the industries of Japan.

INDUSTRIES THRIVE ON THEM

According to the latest official figures, in the spinning and weaving industry alone women furnish 82.4 per cent of the "man power", the number of female operatives being 740,511 as against only 158,281 males. In miscellaneous industries they furnish 54.3 per cent. Although men outnumber women in lumber, machinery, chemicals, foods, ceramics, printing and book-binding, gas and electric works and the metal industries, yet when the grand totals are taken women and girls are still in the lead, numbering 886,234 workers as against 774,098 or 63.4 per cent. (Pre-war)

Women in Labor Force 1948~1956

Unit: 1,000 persons

	Population of Productive Age	Labor Force Population	Percentage of Labor Force Population in Population of Productive Age
			%
1948	28,470	13,500	47.4
1949	28,710	14,610	50.9
1950	28,870	14,230	49.3
1951	29,650	14,480	48.8
1952	30,170	15,040	49.9
1953	30,350	16,120	53.1
1954	30,990	16,500	53.2
1955	31,680	17,390	54.9
1956	32,380	17,650	54.5

TEN MILLION WOMEN WORKERS

Before the second world — war more than ten million women (10,130,000) workers were employed in Japan.

The division of work was as follows:

On farms	5,690,000
Servants	719,000
Workers in cotton mills	479,000
Women in business	417,000
Workers in hotels and restaurants (Waitresses, barmaids and geisha-girls)	323,000
Workers in cocoonery and filature	216,000
Teaching profession	106,000

Medical profession (Doctors, nurses, etc.)	62,000
Workers in communication (Telephone girls, etc.) ..	51,000

WOMEN RUN TEXTILE FACTORIES

NUMBER OF FACTORIES AND OPERATIVES IN THE JAPANESE
COTTON SPINNING AND WEAVING INDUSTRIES ACCORDING
TO NUMBER OF OPERATIVES PER FACTORY (End of 1935)

Operatives per Factory	Cotton Spinning Industry				Cotton Weaving Industry			
	Number of Factories	Total Number of Operatives			Number of Factories	Number of Operatives		
		Males	Females	Total		Males	Females	Total
1-4	43,394	8,210	82,369	90,579
5-9	227	313	785	1,098	2,258	1,916	12,425	14,341
10-14	17	44	144	188	847	1,435	7,431	8,866
15-29	16	113	197	310	1,089	3,209	18,436	21,645
30-49	7	96	183	279	369	2,364	11,243	13,607
50-99	6	96	311	407	224	2,802	12,629	15,431
100-199	4	76	572	648	119	3,378	13,290	16,668
200-499	33	1,883	10,860	12,743	59	3,461	13,639	17,100
500-999	72	6,674	46,166	52,840	14	1,402	8,092	9,494
1,000 & over	61	10,808	89,479	100,287	16	2,730	19,246	21,976
TOTAL	443	20,103	148,697	168,800	48,389	30,907	198,800	229,707

The above figures need no comment. In spinning mills women supplied 88 per cent labour and in the weaving mills about 87 per cent.

WOMEN IN MATCH INDUSTRY¹

Year	Plants	Male workers	Female workers
1909	192	4,763	12,039
1914	179	4,613	13,064
1919	185	5,498	14,921
1924	99	2,833	8,317
1927	88	2,553	7,151
1930	137	2,071	4,571
1933	143	2,467	5,683
1939	153	2,400	5,710

The above figures clearly illustrate what contribution women

¹ Figures supplied by B. M. Kato, Nippon Match Co., Kobe.

make to match industry. Ninety per cent of them are either very young or old — younger than 16 or older than 50.

HOW THEY ARE TREATED

I have personally seen in many places, and particularly the Kanegafuchi Mills at Osaka, that the girl workers are treated with care and kindness. They do their work as a joyful duty and not as a burden as workers in India do. With wonderful smartness, alertness and cheer I found the girls managing their task creditably. The neatness in the working and residential areas can prove a great lesson to many countries. A beautiful park, a cinema hall, a school and a hospital attached to these mills are clear proof of how labourers are cared for. Their beddings, clothes and rooms were decidedly much cleaner than those of some of the millionaires in India. Their doublestorey hospital was far superior to the Civil Hospital at Delhi. When I saw groups of "off duty girls" loitering in the park in their multicoloured kimonos, my eyes refused to believe that they were labourers. Some of the princesses in India would envy the freedom and cheerfulness of the working girls in the Kanegafuchi Mills.

Besides free educational courses, women operatives in these Mills get free health insurance and medical service, with bonuses when they leave, based on an allowance of from 40 to 60 days of wages at the end of one year of service, and 10 per cent to 20 per cent more for each additional year. The average term of employment is two and half years. The usual reason for leaving is marriage. No indenture is required for admittance, and no restrictions are imposed on personal freedom except as are necessary to maintain fair discipline.

This Mill is one of the great Kanegafuchi system, which manages 33 factories for spinning, weaving, knitting and finishing cotton, silk, rayon and wool, employing 20,000 operatives. Excepting Russia, I dare say no other country arranges things like health lectures, study groups, reading circles, circulating libraries, theatrical and other entertainments, football, baseball and tennis for workers. But these are common in big Japanese factories.

TREATMENT VARIES

But this does not mean that every single girl worker is treated so admirably. The treatment differs according to the size, capital and kind of industry. It is true that in some smaller industries the

treatment is not even half as good, but, in general, working hours have been reduced, and workers have far better status than they ever had in 25 centuries. The future of Japan is in the hands of her daughters.*



“The women of Japan have equal rights with men on paper only and not in practice”
— An M. P's Wife



Women are co-operating with the police in the fight against the blackmarket. Many cases have been brought to light where women, finding a dealer who was not playing the game, have joined forces to boycott the shop in question.

A strong movement has started in Kobe not to buy blackmarket goods. A pledge has been signed by 100,000 women. The pledge contains the following clauses:

- 1 I want to know what I am getting for the price at the shop where I buy my fish and vegetables.
- 2 I will not buy blackmarket goods. The members have a mark on the doors of their houses as a sign that they will keep the pledge.

The movements of the women to better their living are gradually bearing fruit. Localized movements have spread nationwide and prospects for brighter days are seen through their efforts.

The future for the women of Japan is filled with hope and happiness.
— The Mainichi



* This Chapter was originally written before the last war. Many changes have since taken place in Japan, especially among the Women.

CHAPTER VIII

WOMEN LEAD RURAL JAPAN

WOMEN PLAY IMPORTANT ROLE — ELECTED TO PARLIAMENT—SEVENTY PER CENT VOTES. ACTIVE IN VILLAGE ASSEMBLIES — VILLAGE ASSOCIATIONS — WOMEN GRADUATE LEADERS — MARRIAGE REFORM — NURSERY SCHOOLS IN TEMPLES — MONEY FROM RAGS — FUNDS FOR SOCIAL ACTIVITIES — SEVERAL CLUBS IN EACH VILLAGE — PARENT TEACHER ASSOCIATIONS.

WOMEN PLAY IMPORTANT ROLE

Rural revolution has made women take a very active and important role in politics. In 1947 sixty-five per cent of women voted in elections and in 1949 seventy per cent of them voted. Women were elected to the Parliament and village Assemblies all over Japan. Women's Associations with a membership of forty to 95 per cent all married women exist in seventy per cent villages. These Associations replaced the Women's Patriotic Association which was regarded as a Wartime and War-minded organisation. These Associations have their elected leaders, mostly graduates of Women's High Schools or Technical Schools.

WOMEN'S ASSOCIATIONS

The Women's Associations are primarily concerned with the promotion of Women's and Children's Welfare. They also hold classes in sewing, cooking and flower arrangement. Lectures on the New Constitution and the revised Civil Code and Women's rights were also organised in these associations.

These associations annually entertain parents of the war dead on the occasion of the annual Shradh (O-Ban) — A Buddhist

festival. They entertain all residents over 77 years of age (considered to be an auspicious age). Some associations run mothers' school for the education of farming wives. The mothers take 70 hour courses on social, economic, and legal problems. It is anticipated that in ten years time every village woman will have passed that course.

MARRIAGE REFORM

These associations hold campaigns advocating cutting down of marriage expenses and lavish ceremonies. The associations also help older girls who have difficulty in getting married. Women members are kept well informed about local and national affairs. They conduct Political meetings to acquaint voters with personal histories and platforms of candidates.

NURSERY SCHOOLS IN TEMPLES

The associations also run nursery schools — mostly in temples (good use of temples indeed — which we should copy). Outside lecturers are invited to lecture to mothers on latest information on health, sanitation, infant care, and food preservation.

MONEY FROM RAGS

In most villages funds for activities are raised by annual subscriptions ranging from yen 5 to 15 (one anna to three annas per month). Some associations raise additional funds by salvaging rags, four hundred pounds of cotton can be recovered from 500 pounds of rags and new cloth can be manufactured. It will be especially useful to our present economy. Every municipality can start a few plants. Machinery has already been imported in India and copyrights purchased.

OTHER MEANS FOR FUNDS

Funds are also raised by collecting scrap, waste paper, making slippers from straw, and sponsoring plays and musicals.

BUDDHIST WOMEN'S ASSOCIATIONS

Besides this great organisation for civic, political and social purposes, most villages have Buddhist Women's Organisation. Membership varies between one to three hundreds. The meetings are usually held in temples to listen to sermons.

SEVERAL CLUBS IN EACH VILLAGE

In every village there are several neighbourhood clubs of women called 'KO' with a membership of 10 to 15 women. These clubs are like our *SAT SANG* (bodies organising occasional recitations of religious books and devotional prayers). They meet at some member's house. Before the War these organisations used to arrange pilgrimages to various temples and shrines all over the country. Women also take very active part in the Parent Teacher Associations.

PARENT TEACHER ASSOCIATIONS

Before and during the War almost all Japanese villages had both Parents' Associations and Mothers' Associations, which were concerned with local school affairs. Now they have been Americanised and merged into Parent Teachers Associations, at least one third office bearers of this nation-wide organisation are women. The association confines its activities to economic and educational sphere. Round table conferences between teachers and Parents are held each month. Fees paid by the members are expended on school equipment and welfare of school children and teachers. The term P.T.A. has become a part of Japanese language just as milk and butter, pronounced MILKU and BATAR.



A breakup of the daily life of a housewife as conducted by the Livelihood Science Research Institute can be summed up as follows:

Sleep, seven hours; time for preparing meals, six hours 57 minutes; sewing or mending clothes, three hours four minutes; minor duties, one hour 41 minutes; rest, one hour 28 minutes; general duties, one hour seven minutes; cultural activities, one hour five minutes; housecleaning, 51 minutes; care of children, 48 minutes.



CHAPTER IX

HOME IS MY FACTORY

The whole of Japan is a home of factories.

* * * *

Three years ago war had reduced my factory to a pile of ashes. Today with three workers (myself, wife and an old worker) in my one room home-factory I have saved one million yen and am planning to establish a large factory — A small factory owner in an interview with the author.

* * * *

Cottage industries mean wealth for the poor, wealth brings dignity — the end of untouchability and other social sufferings.

* * * *

From bamboo alone the Japanese manufacture 1,400 articles in their home factories which number 14,000. Bamboo chairs and bamboo-made radio sets are unique in artistic beauty. Bamboo for export finds expression in endless varieties of excellent Japanese handicraft. Baskets, knives, forks, spoons, smoking sets, serviette rings, buckles, buttons, door handles, handbags, tiles, plywood, waling canes, fishing rods, knitting needles, toys, shoes compacts, trays and pipes are among the myriads of products made of this versatile wood.

* * * *

A factory which forms the centre of the shoelace industry is situated in a farming village. In the centre of the industry is a small-scale plant equipped with electricity operated mechanical installations. Here cotton, silk or rayon yarn is braided into shoelace by mechanical power, but beyond this the shoelace

thus braided goes through various phases of a household industry; shearing, metal fitting, packing, etc., all conducted as side jobs chiefly by the women and children in the neighbourhood.

I have spent seven years in Japan and have closely watched her phenomenal industrial progress during the last thirty years. The chief secret of her industrial prosperity is that the whole of Japan is one large factory where every citizen is busy contributing his or her quota. Eighty years ago Japan was an agricultural nation. Today, despite the war, she is a leading industrial nation. The secret lies in Japanese homes which are homes at night and factories during day. The home-factories of Japan have wrought a great miracle in the post-war rebirth of Japan's industrial economy.

LET FACTS SPEAK

The British exploiters were never tired of telling the world that India is essentially an agricultural country and it could not be converted into an industrial nation. Emperor Meiji of Japan achieved in fifty years what the British could not and would not do in India in 200 years. I have already explained in another chapter how the Emperor did it but here let me quote only the last decade's progress of home industries which has been fast converting Japan, an agricultural country, into an industrial country. The farmers who mainly depended on meagre agricultural incomes have been able to improve remarkably their living standard by devoting their spare time to home industries and small industries.

FARMERS WITH SUPPLEMENTARY JOBS

The following data shows the progress of the scheme to provide supplementary jobs to farmers in the vicinity of their homes:

1937	25%	had supplementary jobs.
1938	54.3%	„ „ „
1941	58.1%	„ „ „
1942	61.5%	„ (Peak industrial & war production year).
1946	46.4%	„ (After the war).
1947	52%	„ „ „ „

Many war workers have again become farmers after the war. The decrease in supplementary jobs is natural.

FAMILY CO-OPERATIVES

Japan's home industries can best be described as family co-operatives. During my sixth visit to Japan I must have visited at least two hundred home factories and everywhere I found husband, wife, daughters, sons and some near relations working and chatting together. I found that work was a source of delight to them and not drudgery as most of our labourers feel and therefore work as long as the watching eyes of the overseer or munshi are fixed on them. Even the children of the ages of 8 and 10 lend a helping hand in home industries in their after-school hours. This does not mean that they do not play. The truth is that the Japanese are as picnic-minded as any American and they occasionally go out to parks, beaches, mountains, hot springs, shrines, temples, and places of public amusements. They do not wait for week-ends. To them every day after work is a holiday and in the evening one can find thousands of working men and women with their children, some tied on the backs of their mothers and elder sisters, some led by fathers moving on in endless rows in parks, shopping centres, amusement centres and temples. Children specially love visiting department stores which generally have a fishing pool, a roof garden and a temple on the eight-floor building. The Japanese believe in the maxim "work while you work and play while you play." These children seriously contribute their quota of work in poor working families. Here is the story of a family co-operative through Western eyes¹ :—

A PENCIL COMBINE

In a small wooden house in a side road in Tokyo, behind a latticed sliding door which serves as a window as well, a man, a woman and a young girl are seated on the clean, mat-covered floor. They bundle and label pencils, which are brought to them from a factory near their home. The pencils are tied together in neat little packages of twelve with gay pictures on top. The family work with quick, automatic movements.

They work from early morning until late at night, and when the small children come home from school they spend eight hours, so the mother says, helping the older members of the family with

¹ Made in Japan.

the packing of pencils. Each child earns two annas for eight hours' work a day. This was before the war.

Forty families near the factory are employed in a similar manner. Before they get the pencils, many other families in Northern Japan, in Hokkaido, a district rich in wood and graphite, have worked under similar conditions making the unfinished pencils which are sent to the Tokyo factory in huge bundles.

The factory itself is merely a large handicraft plant laid out in thinly walled wooden workshops of somewhat improvised appearance. The machinery is more or less primitive. The forty men and women employed in this factory are mostly young and they earn between 15 and 30 yen a month (18s. and £1 16s.). Only the finishing of the pencils is done here; they are painted, polished and name printed on them. In all, the factory sees to the planning of the work of about hundred small family enterprises, from the purchase of raw materials to the distribution of the finished pencils.

This combine produces 600,000 gross — 86,400,000 pencils — a year. The cheaper ones are sold to the wholesale trade at prices ranging from 3 to 3.2 yen (.45 d.) a dozen. Pencils with India rubber at the top are sold at 6.6 yen (.96 d.) a dozen. The best quality costs 25 yen (3 1/2d.) a dozen. None is of poor quality. This one factory, employing a hundred families and forty factory workers, exports its pencils to forty countries.

This 'pencil combine,' and the cotton weaving home industry are typical of the first category of Japanese workshops, manufacturing in innumerable branches of industry for export and home consumption: small home enterprises, co-operating informally with the trade and with small-scale industries incorporated into larger units of production and distribution.

DIVISION OF LABOUR

This is a unique co-operative system on which Japan's structure of small and home industries stands. In Kyoto I was taken through a long bazar of fan makers where I witnessed the practical scheme of division of labour and co-operation. The bazar had several lanes, each branching out at a short distance. Each lane had home factories exclusively attending to one aspect of fan-making. A fan is completed in six different homes. Each home performs its task with honesty and sincerity and the result of this co-operation is the world famous Japanese silkfán. (See picture). One home

factory simply provides green bamboo pieces, the next cuts them into 8 inch handles, the third house colours and polishes handles, the fourth does the carving on wood, the fifth puts the printed silk and the sixth gives the finishing touch and provides the hook and folds every piece with care. The wholesaler provides the boxes and arranges the sale of fans to all parts of the world.

VILLAGE TRAINING SCHOOL

Japan is able to run her home industries on a scientific and well organised scale because of the availability of fully trained technicians in every industry and because of a clear grasp of the fundamentals of small and rural industries described in another chapter.

Our country must adopt the same system of concentrating an industry in villages where raw materials for the same are locally available. Much, however, depends on the industrial education system which enables thousands of workers being trained in their villages. They do not need to live in crowded cities and be Westernised bookworms; instead they get practical training in village centres at a nominal cost and enjoy all the comforts of the home while they are trained. Girls and boys study together, work together, play together, and come out as useful citizens of their country. (See story of Ogawa Hand Paper School).

INDUSTRIAL EDUCATION

Industrial education is one of the main pillars of Japan's industrial structure. Industrial education is given at the universities, higher schools of technology, polytechnic schools and industrial continuation schools. Next to the United States of America and pre-war Germany, the universities of Japan provided excellent facilities for industrial education. To enter the industrial colleges it is necessary to pass six years in primary school, four years in middle school and three years in higher school. Students come to the university at the age of 18-19 and it takes them three years to complete the university course. Two hundred polytechnic schools and about 2 dozen higher schools of technology turn out every year thousands of qualified technicians for various industrial concerns. The higher schools annually turn out more than ten thousand qualified technicians. The polytechnic schools are the foundation stone of industrial education. They are maintained by provincial

governments. They admit those who have completed six years in primary school, though there are some which require a higher qualification. They usually have a three-year course, in some cases with a two-year or even five-year course, and have departments in mechanical, chemical or civil engineering, and architecture, while there are some others which confine themselves to textiles, ceramics, or such other principal industries of the locality where the school is established. There are special schools for training in making hand paper, photography, watch-making, mining, electricity, etc. Some schools give morning, afternoon and evening courses. Thirty to forty thousand students are annually trained in these schools which employ nearly three thousand teachers.

CLASSES FOR WORKERS

Industrial continuation schools generally give two years' training to those who take up jobs after passing out from primary schools. The Departments of Agriculture and Commerce also provide a similar training course for workers. Since the whole structure of education in Japan is now undergoing tremendous changes under American occupation, I am omitting details about facts and figures, but I propose giving the latest data in the fourth edition of my book "Secrets of Japan," which will be published very soon.

SOCIAL INDUSTRIAL EDUCATION

Japan is far advanced in social industrial education which is imparted through a wide net-work of science museums, commercial museums, libraries, motion pictures, radio, public lectures and industrial publications. Every branch of industry has special publications which provide details of latest inventions and best designs in each industry. Such publications are profusely illustrated and thus enable a simple home manufacturer to make those designs. Manual training and industrial education are an essential part of schools education. *We in India must draw up and carry out a similar plan of social industrial education for cottage industries.*

BOYS MAKE CYCLES

This educational system produces wonderful results. I witnessed in the Freedom School near Tokyo (founded by a woman journalist) fourteen-year old boys being taught to make cycles, school desks, chairs, watches and blueprints of machinery. When

I visited the school I was surprised to see boys making clocks.

WONDERFUL INDUSTRIAL GENIUS

The Japanese girls and boys have wonderful industrial genius. Our artisan families whether in Kashmir or Delhi, Jaipur or Mysore, Dacca or Hyderabad are equally gifted, only they need proper education and training in various crafts in modern technical schools like those in Japan. For example, take the Art Academy in Tokyo, which I visited in July on the eve of my departure from Japan. The boys were on strike (against increase in fees) the day I visited the institution, but I saw enough to give me an idea of what they were taught to become qualified artists. The following table will give the full story:—

TRAINING IN ARTS

Subject.		Number of students
Japanese painting		83
Oil painting.....		62
Sculpture	{ Plaster	60
	{ Wood sculpture	29
Art Technique	{ Picture design	72
	{ Metal carving	26
	{ Forging.....	17
	{ Moulding.....	30
	{ Lacquering	48
Architecture.....		61
Normal school (Training teachers).....		72
Professors and teachers		75

HOME-MADE MACHINES

No wonder with all that training in schools and the genius in their blood and art at their finger tips, Japanese mechanics are able to produce home-made machines for every small operation in any industry. Wherever I went I heard the same story. To my question "Where can we get this machine?" the reply was "Oh, I made it myself and I will make one for your government too." These home-made machines are ridiculously inexpensive, some of them as cheap as ten to fifteen rupees (these are post-war prices). A modern spinning wheel with six spindles to be worked like a treadle sewing

machine was offered to me for Rs. 30. Scores of small machines to make confectionery, ropes, mats, buttons, necklaces, glassware, hosiery, chinaware, bambooware, woodware, strawware, dolls, etc., are available in Japan which can be easily reproduced in India. Patent rights can be very easily reproduced and negotiated in India. I am assured by the President of the Board of Trade of Japan that experts and technicians from Japan would be very willing to come to India and advise us.

STORY OF A GENIUS

In this connection the following true story related by Gunther Stein will be read with interest:—

One day in 1909, the spiral gear of a British made gas engine suddenly broke. Nobody in Japan could make a new one. The work was urgent. A short, modest little workman was found who succeeded, with his primitive tools, in copying the complicated mechanism which had been produced in England by the latest modern precision machines.

He still remains the modest little workman. He works from dawn to dusk in his gear-cutting plant which is the largest in Japan and probably one of the finest in the world. He wears a worker's blue overall; his hands are oily. His three brothers are now working with him. Together they own their factory worth 3,000,000 yen, and employing 260 workers.

NO FABULOUS SALARIES

The chief and his three brothers do not take more pay from the factory than the highest-paid employee's 5.30 yen per day (6s. 6d. at pre-war rates). The engineers just reach the average wage of the staff at 3.50 yen (4s. 3d.) per day. The profits, which are considerable, are invariably reinvested in the factory. The owner has never taken a day off, does not drink, smoke or gamble, but is happy and enthusiastic. From a special fund he allows himself an expense account not exceeding 200 yen (£12) per month, but he hardly ever touches it except for the education of his children. He says that he considers the factory not as his property but as a trust which he is called upon to administer. Money he says, does not interest him, it does not even give him an incentive. What he really wants is to cut beautiful gears. He has no other interests. He is proud of being an example to many Japanese industrialists

who, in his view, spend far too much, live far too well and work far too little! He served a hard apprenticeship, with his father, and he maintains the patriarchal principle on his factory, though with high wages, an eight-hour day and two free Sundays a month.

This man is considered a technical genius. It is said that there is no gear in the world which he cannot reproduce accurately. And gears are, after all, vital to the engineering industry, to modern armaments, to shipbuilding, and many other industries.

Not only Japanese but even Western engineers bring their most complicated technical problems to this original genius who taught himself to work with logarithms and mechanical text books, but who still relies more on his sight and touch.

A good deal of the progress of the Japanese engineering industry rests on the success of this small factory, which does nothing else but cut infinite varieties of gears from blue prints sent to them. According to authoritative British experts this factory represents one of the important pointers to the great future of Japanese industry.¹

COME TO THE VILLAGES

Now let me take the reader with me to six out of the two hundred villages I visited this summer in my quest for knowledge about Japan's cottage and small industries. These villages are typical villages exclusively devoted to one of the home industries which are the life line of Japan. I will take you to an iron smith's village in the beautiful hills near Kobe, three historic villages concentrating on bamboo industries, a village producing hand-made paper in every home and a match-makers' village near Osaka. Every one of these villages is situated in beautiful natural surroundings reminding me of Kashmir. There was abundant supply of water, electricity and cheap transport by bus, rail or boat and raw materials were also available on and round about the spot. I have given the full story of Japan's power resources in another chapter. Here it will suffice to say that Japan is the fifth largest power producing country in the world and 90 per cent of her villages have electric lights in their homes and electric power to serve them in their small and domestic industries.

¹ Made in Japan.

IRON SMITHS ALL

First let us visit Miki, a historic village near Kobe. In Japan there are three famous hardware producing centres turning out fine tools and cutlery. The are Miki (near the port city of Kobe), Sakai (near Osaka), and Sanjo (in the province of Niigata). Sixty per cent of all the hardware products are produced in Miki. It looks like a village but it may be described as a small town spread in 6 by 2 1/2 miles, mostly on the two sides of a road along a serpentine river, which helps considerably in exporting goods to Osaka by boat. Here all are castiron smiths.

I visited more than a dozen home factories and was amazed to see their turn over, mostly from waste iron, scrap, etc. A widow told me: "Everything I make here is from the iron bands which bring safely preserved cotton bales from India." A young Japanese, a very prosperous looking and perfectly dressed in Western style, said: "My uncle became a millionaire because of these iron bands from India." This youngman greeted me with "Jai Hind," "Bandematram" and "Netaji ki jai" and tried to use as many Hindi words as he knew. He told my driver in Hindustani "Charo-Charo." What he meant was "Chalo." The Japanese cannot pronounce L and say R instead. My name all over Japan was "Rar" and not "Lal" because Japanese fail to pick up L. He said: "I like very much chapti." Okada Kinzoku Co. Ltd. runs the biggest factory in the village, producing finest cutlery. This firm became a leader in pre-war hardware industry. Miki has a thousand year old industry. Out of its total population of 15,000 no less than 8,000 are engaged in the hardware industry. This place is famous for its saws, knives and agricultural implements, etc.

WORKERS ARE SHARE-HOLDERS

In several factories I was told that the workers (who are mostly relations of the boss) are all share-holders and they work with pleasure and the result is high production. How I wish we in India could also introduce this system. Unfortunately our plans remain mostly in the planning stage.

PAPER MAKERS' VILLAGE

Now let us proceed to village Ogawa high up in the hills. It reminds me of Pahlgam in Kashmir. The village is situated on

a river bank and has a rich supply of raw materials for hand paper industry. The river serves admirably as a free water channel for washing and cleaning the fibre. Out of a population of 13,000 persons (including farmers, artisans, school boys, shopkeepers, etc.) 3,500 persons are engaged in making hand paper. Every other house is a paper factory with its walls plastered with paper (being dried by coal or wood fire where electric heat is not available). You visit any home and you will find pictures of the Emperor and his five children. The picture of the Empress is rarely seen in a home.

A FAMILY'S EARNINGS

Let us visit a typical home factory. The proprietor is an old man Itosan and has a young, intelligent and charming wife (second marriage). Father, mother, two young girls and one relative are all working. Their daily production is 800 sheets of paper., 3 feet by 2 feet. Their daily net income is one thousand yen, *i.e.*, about Rs. 11-8 according to the new rate of exchange. They work 25 days a month and enjoy their five well-earned holidays. The village has an up-to-date technical school and a laboratory where young boys and girls receive 6 months' training in making all kinds of paper. The school serves as a training institute, a workshop, laboratory and a museum for this village industry. The moment you enter the school you find the plants (which supply fibre) growing in the compound. They are mulberry, kozo and mitsumoto. Kozo also belongs to the mulberry family. Bamboo is not used for hand paper industry.

HISTORY OF HAND-MADE PAPER

With the advent of peace and a new pattern of living in Japan, people at home and abroad are showing increasing interest in Japanese paper. The revived interest of foreigners, as shown in their inquiries, is a happy augury for Japan whose economic recovery will hinge largely on the extent of her foreign trade.

The term "Japanese paper" is used here to denote its distinction from its sister product that goes to make daily newspapers, wrapping papers, paper boxes and the like. Japanese paper is strictly a product of the human hand, in humble country huts and not of the huge paper mills of Hokkaido or of the United States.

Once upon a time Japanese paper was as indispensable to a Japanese home as the straw mat. It covered the *shoji* and the

fusuma (sliding doors and padded panels) centuries before the introduction of glass windows into Japanese dwellings. Despite this inroad of Western interior decoration into Japanese homes, the use of Japanese paper cannot be completely dispensed with in a Japanese home. Could one conceive of glass chandeliers in a Japanese "zashiki" (Japanese living room) replacing lamp shades of plain wood or bamboo frame covered with atristic Japanese paper? And I think it would be equally unthinkable for doors of Western design to take the place of *shoji* and *fusuma* in a Japanese home for aesthetic and technical reasons. The gentle light that a paper covered *shoji* allows into a Japanese room is most congenial to the dwellers of this island kingdom which has great humidity in the summer.

Apart from Japanese use of this special paper, foreign businessmen are now demanding Japanese paper for many industrial purposes such as book-binding, interior decoration, packaging, etc. There is possibly one obstacle that must be overcome before an expanded demand can be met. That is production method. Until recently, the procedure in making Japanese paper was hardly different from that followed as far back as the fifth or sixth centuries. Prior to that paper was unknown here.

History has it that during the reign of Empress Suiko (610 A.D.) a representative of the King of Koma (a part of old Korea) brought the Chinese paper-making method into Japan.

Ancient paper makers learned to produce 180 kinds of paper from three prime ingredients. There were hemp, "kozo" (paper mulberry) and "gample" (native daphne).

At first, Japanese paper was not as strong as it is known to be today. This characteristic appeared in the Kamakura period (12th century), possibly, as a reflection of the spirit of that era. First came the quality known as "danshi" (superfine), then the "Hikiai," "Sugihara," "Hosho," and finally "Torinoko," the reputed king of Japanese papers.

The industry took another remarkable spurt in the succeeding Tokugawa era (17th to 19th century) under the encouragement of various clan chieftains. At this time a fourth ingredient known as "mistsumata" (*Edgeworthia Chnysantha*) was added to the hand-made paper industry.

The intricate steps of paper manufacture are fascinating in their primitiveness. At the outset the barks of the kozo and mitsu-

mata are stripped at the beginning of winter. Gampi trees are peeled in spring and summer. Pieces cut branches of the kozo and mitsumata are steamed before their bark is stripped but the gampi bark comes off after boiling. Bundles of wood are boiled in a huge cauldron and the stripping is done while the branches are warm. For this purpose the entire family is mobilised.

The bark strips (kurokawa or black skin) are temporarily stored after complete drying. Later they are soaked in running water for hours at a time. As they soften to some extent the outer covering is removed with special peeling knives by skilled hands. What remains goes in for another soaking in running water at which time discernible flaws such as knobs and fissures are removed. The result produced is called shirokawa or white skin.

The shirokawa is then boiled in a mixture of lye and water until it becomes so tender that it can be easily torn with the fingers. After five or six hours the refined bark is due for another running water treatment, then beaten for a long time on a wood or stone surface.

A visit to the rural region in paper making season will be marked with monotonous sounds of clubs pounding paper pulp to the sad rhythm of traditional songs chanted by the village women.

The two modern manufacturing processes are classified as "Nagashisuki" and "Tamesuki" methods. The first uses "neri," a sticky extract of hibiscus manihot (a kind of rose mallow) which prevents the fibre from dissolving during its fluid state. This assists in strengthening the final product. The second method adopted in the middle of the Heian period and prevailing in most foreign countries both in the East and in the West does not apply the neri formula.

The pulp is strained and left in a container overnight. The following day it is pressed into sheets and later spread on wooden board. This is set out in the sun to dry. So the climate is the real regulator of production. However, under favourable conditions an average craftsman is able to dry between 1,000 and 1,500 sheets a day. The faint outline of wood grain which gives the paper attractive distinction is said to be the result of this drying process.

Lately some labour-saving devices have been incorporated to speed up production. In addition chemicals are being employed to bleach the kurokawa. In spite of this the industry still defies complete mechanisation. The Japanese paper is still of necessity

a handmade product requiring arduous toil and skill born of years of experience.

In the face of this apparent drawback, however, the Japanese paper craftsmen confidently speak of meeting any expanded demands and are eager to do so without sacrificing any of the paper's traditional beauty, strength and utility.

300 ARTICLES FROM PAPER

The Japanese make three hundred articles of daily necessity from paper. According to Chamberlain:—

“The Japanese use paper for a score of purposes. One reason is that their process of manufacture leaves uncut the long fibres of the bark from which the paper is made, and consequently renders it much tougher. Fans, screens, and lanterns, sometimes even clothes, are made of paper. A sheet of nice, soft paper does duty for a pocket-handkerchief. Paper replaces glass windows, and even to a certain extent the walls which with us separate room from room. Japanese housemaids do their dusting with little brooms made of strips of paper and dabs of soft paper serve, instead of lint, to prevent bleeding. Oil-paper is used for making umbrellas, raincoats, tobacco-pouches, and air-cushions, as well as for protecting parcels from getting wet in a manner in which no European paper is capable of. Paper torn into strips and twisted takes the place of string for a hundred minor domestic uses. I have even seen the traces of hangings, and a harness mended with it. Then, too, there is the so-called leather paper, which is used for boxes and more recently for dados and the crepe paper now familiar abroad as a material for doilies and illustrated booklets, Japanese writing paper, properly so called, lends itself admirably to the native brush, but not to our pointed pens, which stick and splutter in its porous fibre.”... Chamberlain in “Things Japanese.”

THE BAMBOO VILLAGES

The three ‘bamboo villages’ I visited are situated near Kobe, Osaka and Kyoto, three important industrial and commercial centres.

Village Yamaguchi near Kobe is situated on a hill near the famous hot springs of Arima which are served by electric train and bus. The whole village is exclusively devoted to bambooware manufacture. Several homes I visited were nothing but busy factories, where the family members were rapidly turning out green

split bamboo into beautiful baskets, vases, lunch boxes, trays and a hundred varieties of articles of daily necessity. The village headman, who is the main exporter and wholesaler, took me round various home factories and his huge store where nearly a hundred thousand peices of bambooware were piled in rows in several large rooms in a two-storeyed building. The workers seemed to be quite prosperous, well dressed, well fed and happy. The village headman's house was like that of a rich zamindar in the pre-partition Punjab with the addition that he had a rich stock of artistic paintings, Japanese paper scrolls (hanging pictures) and the inevitable home temple dedicated to 'Buddha from India' (which debt the Japanese proudly acknowledge while meeting an Indian.)

ELECTRICITY MEANS WEALTH

In another bamboo village near Osaka I found how electricity meant dollars for the simple village mechanics. I saw young girls weaving bamboo screens (verandah size) on power looms to the accompaniment of Japanese national songs. These home factories were producing heavy articles like screens and beautiful baskets for the American market. This little village earns nearly two million U.S. dollars by exporting bambooware. India, the original home of bamboo where labour is still cheaper than in Japan and living necessities far cheaper than in Japan can surely share the U.S. market and create many more in South America and other countries. An average worker on a power loom can earn three to four rupees a day (post war rate). The villagers were certainly more prosperous looking than the residents of bombed Tokyo.

Yet another bamboo, village I visited near Kyoto produces the finest bamboo buttons, brooches, flutes and artistic bambooware. These are mostly painted by children and the destination of these products is the gay lands of Latin and South America.

1,400 ARTICLES FROM BAMBOO

Next to Buddhism bamboo was the most valuable gift that India made to Japan. Now Japan grows more than a hundred varieties of bamboo. The uses of bamboo are almost numberless, but 1,400 ways of its use in Japan have been listed. Bamboo is one of the daily necessities in domestic life. It is used as New Year decoration from one end of the country to the other. It adds to natural scenery in Japanese gardening and a potted bamboo is

a gem. It also plays an important role in Japanese architecture, for it is often used as an imposing pillar before the alcove, the sacred place in a Japanese house. It is used for all kinds of furniture, which is far more beautiful than wooden furniture. Bamboo plywood is a great industry in Japan and tiles and ceiling materials made from bamboo are very artistic. Easy-chairs, tables, tea trays of beautiful designs, blinds, screens, baskets, flower vases, lanterns, umbrella handles, umbrellas, bookshelves and numerous kinds of utensils and vessels for domestic use are made from bamboo.

A firm in Tokyo is now manufacturing ladies' compacts, cigarette cases, chess boards and ladies' handbags (for the American market). These handbags are very popular in the United States. They are made from smoked bamboo, obtained from the ceilings of old farm houses, which, because the houses have no chimneys, are discoloured by the smoke and soot of years from the family hearth. This bamboo has a soft, rich silky appearance. Samples of all these articles are available at the cottage industries museum in New Delhi. Several musical instruments are also made of bamboo and Lord Krishna's flute *Bansuri* is very popular in Japan. Japanese make artistic flutes. Lord Krishna playing his flute is enshrined in the largest temple at Nara.

BAMBOO A BIG INDUSTRY

India, the original home of bamboo, can easily turn bamboo into a profitable export industry if only we adopt one hundred and forty of the 1,400 beautiful articles of bamboo that Japan produces. Bamboo means a potent source of dollars since several villages export bamboo goods worth millions of yen to America every year. Japan has developed finer varieties of bamboo from the original Indian bamboo, say our experts but they never care to plant the finer Japanese bamboo in the terai of the Himalayas, in the U. P., Bihar and Assam and also in the beautiful hill regions of Travancore and South India. What we really need is a planned study of the bamboo industry of Japan, inviting Japanese mechanics, importing Japanese machinery and buying Japan's patents. Then we can also produce bamboo plywood, tiles and what not.

BAMBOO PRODUCTS¹
PROCESS DONE BY HANDCRAFT 95 PER CENT
BY MACHINE 5 PER CENT

Number of small (home) factories	14,000
Limited companies	Only 20
Workers engaged	150,000
Production centres — all over but particularly in Shikoku, Kansai.	

PRODUCTIVE POWER.

Brooms	1,600,000
Veneer	1,000,000
Furniture	1,600,000
Rakes	16,000,000
Fishing rods	15,000,000
Fans (Paper and Bamboo)	13,000,000
Silk and (Bamboo) fan	2,000,000

Fans are manufactured exclusively in home factories which number 712 and there is no big concern or company manufacturing fans.

Cane chairs	160,000
Paper lanterns	1,000,000

FAMILY INDUSTRIES FROM FORESTS

Besides lumber, woodpulp, veneer and plywood, the forests of Japan provide raw materials for many industries in the home, such as camphor culture, manufacture of pine oil and resins. Judge it from the report of family industries in the island of Shikoku alone.

Bamboo

(a) Production: from 1943 to 1945, bamboo production averaged over a million bundles per annum. Over 1,216,000 bundles were produced in 1944 alone. Kochi and Ehime prefectures are the leading bamboo producers, exporting large quantities to other parts of Japan.

(b) Requirements: Kagawa is the only prefecture that needs to import bamboo, while the other prefectures are able to supply their own needs and also to export.

¹ We can manufacture everything in India if we want to. Everyone of the items plus many others like umbrellas, parasoles, baskets, flower vases, lunch baskets and screens can provide a huge market for export abroad.

(c) Distribution: Bamboo is sold by the producer through a private agent or a forestry association to the prefectural bamboo control association which sells it to the consumer through its local distribution offices.

Veneer and Plywood

(a) Production: Shikoku has one plywood mill and two others under construction. The former has a production capacity of 1,200,000 square feet annually. Production in December was 10,500 square feet, 11 per cent of full capacity.

(b) Requirements: As with lumber, local reconstruction calls for large quantities of plywood. Occupation forces are also requiring large quantities.

(c) Distribution: Plywood is sold to the local lumber company which distributes it to the consumer.

(d) Problems: Production is slowed down because of shortages of glue. Some log shortage is due mainly to lack of transportation.

Camphor, Pine Oil and Resin

(a) Sixty-three camphor distilling units in Shikoku, exclusive of a few in the national forests, have produced an average of 74 metric tons of camphor oil and crystals yearly since 1943. Each of these units is generally operated by a family. They use the bark, wood, and leaves of varieties of cinnamomum camphora which are known locally as red camphor and blue camphor. Tight control is exerted by the government-sponsored monopoly, the Camphor Control Association, which buys, distributes, and sells this product.

(b) Pine oil is produced by 390 units with over 1,100 ovens. Production has climbed steadily since the start of the war, because of the great demand for gasoline and oils. Production in 1943, 1944, and 1945 was 480, 1,360 and 6,740 metric tons respectively.

(c) Resin is usually produced by family units. Production in 1943, 1944 and 1945 was 760, 979 and 883 metric tons respectively and is expected to continue on this level in 1946.

Other Forest Products

The forest contributes several other products to the economy of the Japanese people. Acorns and dried mushrooms are used for food, and the bark of sugi and binoki is used for shingles and siding, hemp palm for rope and brooms and Chinese galls for dye.

The inner bark of hinoki is obtained for boat caulking. Cork, grass, leaves and twigs are used by the Japanese family.

Mild mushrooms are consumed only in some parts of India and cost as much as Rs. 20 a seer in Delhi now. We can grow mushrooms in three different ways:—

- (a) French mushrooms in dark rooms.
- (b) The Japanese method of growing in log pieces.
- (c) Mushroom farming on a commercial scale.

I will gladly supply details to readers.

PYRETHRUM IN JAPAN¹ — A USEFUL SMALL INDUSTRY

1. The pyrethrum industry in Japan began when root stocks of pyrethrum, or dalmatian chrysanthemum, were introduced from the United States in 1886. The industry developed to such an extent that by 1940 its principal product, dry pyrethrum flowers, was one of the most important exports of Japan.

2. Since 1926 more than two-thirds of pyrethrum cultivation has been in Hokkaido. The crop also is grown in southern Japan along the Inland Sea, particularly in Hiroshima Prefecture.

3. The area devoted to pyrethrum culture reached a maximum of 29,050 hectares in 1936, declined to 20,000 hectares in 1941, and was reduced to less than 10,000 hectares in 1944 and 1945. Approximately 6,000 estimated hectares of this crop were cultivated in 1946.²

4. The two species of pyrethrum in Japan are (a) a red-flowered type (*chrysanthemum roseum*), for ornamental purposes only; and (b) a white-flowered type (*chrysanthemum cinerariaefolium* bocc) grown for the production of pyrethrum. This species is known commonly as the pyrethrum chrysanthemum.

5. Pyrethrum is propagated in Japan from seeds and crowns of the plants. Sowing seeds in plant beds and transplanting the seedlings to the fields during the following year is the predominant method of propagation.

6. Flowers, the main product of pyrethrum, are harvested when the plants approach full bloom. After careful air drying in sunshine the flowers are ready for marketing, or storage for later sale.

7. In Hokkaido several crops of flowers, one crop annually,

¹ Source — N. R. S. report on forests of Japan.

² Figures in this report, unless otherwise specified, are from the Ministry of Agriculture and Forestry.

may be harvested from the same planting of pyrethrum. In southern Japan only a single crop of flowers is generally realised from one planting. The yield of flowers per hectare in Hokkaido is lower than in the southern districts. Because extensive fields are available in Hokkaido for growing pyrethrum the industry is centred there.

8. The principal enemies of pyrethrum are the gall, withering, and wilt diseases. Two insects, trips and red spiders, attack the plants. They are of little consequence, however.

9. Farmers sell the pyrethrum product usually as dry flowers in 22.5 kilogram bags. The flowers are manufactured into numerous pyrethrum products in small factories.

10. Before 1941, 115 pyrethrum factories were operating. Only 25 were functioning in December 1946.

11. In 1937, the highest on record, 11,473 tons of pyrethrum products were exported. Of these, 8,844 metric tons were dry flowers.

12. Before 1940 over two-thirds of the annual production of

PYRETHRUM MARKETING

Product	Pyrethrin content, Not Less Than (Per cent.)	Marketing Unit	
		Type Containers	Weight of Unit (kg.)
Dry flowers, FAQ grade	0.9	Hemp bag-export.	50.00
		Bale (4 bags)	200.00
		Paper carton or can	0.03
Pyrethrum insect powder	0.8	Export bale (600 cans)	
Powdered pyrethrum	0.8	Paper bag	11.00
Pyrethrum extract 6%	6.0	Bottle	3.75
Emulsion of pyrethrum, 3%	3.0	Bottle	1.88
Emulsion of pyrethrum, 1.5%	1.5	Bottle	1.88
Insecticide solution (spray)	1.2 ¹	Can (5 gals.)	20.00
Mosquito coils	0.5	Pack (10 coils)	0.13
		Export box (100 packs)	13.10

¹ Pyrethrum content of solution depends upon pyrethrum content of flowers. It varies generally between 1 and 1.5 per cent.

FAQ.—Fair average quality.

Source.—Ministry of Agriculture and Forestry. Japanese government.

dry flowers and manufactured products were exported. Most of the dry flowers were shipped to the United States. The bulk of manufactured products went to Asia or to the Pacific islands. No dry flowers or manufactured pyrethrum products have been exported since 1943.

MATCH-MAKING

The main cause of the very rapid growth of the match industry in Japan was the fact that it was mostly run in "home factories"; where labour was cheap. Family members with the help of some near relations run it in their sitting room (to be converted to bed room at night). The process making matches is very simple. The workers require very little skill. Inexperienced women and children are the mainstay of the industry. Nearly two-thirds of the labour consists of women (see Table under "Saviours of Nippon"). In most cases they work at their homes. They make small boxes from wood (cut and ready to be adjusted) and they paste the labels on. They work so fast and in an enjoyable manner that the job is a thing of joy to them. The boxes are sent to factories nearby, where clever female hands stuff them with matches — all in one pick — their hands are so dexterous that the number of match sticks picked is exactly the number needed to fill a box.

HOME LOOM FACTORY

In the chapter on small-scale industries I have given the full story of how 6/7th of the famous textile industry of Japan depends on home factories and small factories and how the best textiles made in Japan are made in the homes. A small home factory of six looms worked by cheap electric power daily produces three hundred yards of good cloth woven in many coloured patterns. A home factory employing a husband, wife and a neighbour's child used to bring in an income of Rs. 90 per month before the war. The child was paid only a small wage since he got free meals and a few new suits of clothes. The electric charges per day amounted to six annas only. Now the conditions have undergone tremendous changes and inflation is responsible for the rise in prices to at least a hundred times, in some cases four to five hundred times. Salaries have also been increased a hundred to 200 times.

Here is the pre-war picture of a typical home cloth factory in Japan presented by my friend Gunther Stein:—

In a small industrial town, at the foot of a beautiful mountain range, a small wooden house stands among rice fields and mulberry groves. In the house six broad iron looms, of the usual size, are worked by electricity. The staff of his small home industry consists of the owner, his wife and the neighbour's child, and they are all very busy.

They begin work in the morning at six o'clock. Three times a day they rest; twice for fifteen minutes and once for thirty minutes. The machines are stopped in the evening at half-past six. Then next day's work is prepared; the woman cooks a meal and the man writes his letters. Twice a month they take a day off.

There is no door between the family's bed-sitting-room and the workshop where the looms are rattling. The floor of this room is somewhat raised and is covered with a mat. There is a low table, a few cushions and a small iron bowl to hold glowing charcoal. Beyond is the kitchen.

Each of the second-hand looms costs Rs. 70. They are sold in the village street just as elsewhere bicycles might be offered for sale.

WOMEN SOUL OF INDUSTRY

Before I conclude this chapter I must salute the daughters of Nippon (Japan) who are the very soul of home industry. They are most hardworking and perfectly skilled in every art and craft. Art is in their blood and crafts at their finger tips. No wonder Japan leads the world in the matter of home-factories.

TAKE MACHINES TO VILLAGES

But women and their artistic hands could not have achieved the miracle of Japan without the well-organised plan of the Japanese Government to take machines and electric power into every home. If we are serious about our talk of home industries, we have to take the machines to the villager rather than take the villager to the machines and force him to live in city slums often drinking cheap liquor and smoking machine-made cigarettes (abandoning his huqqa).

We have talked and talked for thirty years of rural reconstruction and a constructive programme for the people. Let us make our villages prosperous centres of home industries. Thus alone shall we wipe out poverty, untouchability and other national ills. Economic uplift will ring the death-knell of untouchability and other social evils. This was the message our beloved Bapu gave us when

he said:

INDIA'S SALVATION LIES IN HER COTTAGES.



MYTH EXPLODED BY JAPAN

The post-war industrial economy of Japan is relying more and more on the expansion of home industries and maximum utilisation of home-grown raw materials. However, Japan has falsified the orthodox theory, still holding our brains, that a country can only manufacture articles from locally available raw materials. Cotton, tin, rubber, steel and a hundred and one important raw materials are all imported. Japan's world famous textile industry, knitted goods (export value 50 million yen, *i.e.*, 3 million sterling — four crore rupees), shell buttons, brushes (of a hundred varieties), lacquerware, rubber goods and guts are exclusively dependent on imported materials. Japan's fishing industry, which was (before the war) responsible for world's 40 per cent catch, depends on supply of fishing nets made from imported raw materials, especially rammie (which makes strongest rope). Many home industries depend on imported chemicals. Japan is self-sufficient in bambooware (1,400 articles are made — 90 *per cent home industry*), Japanese paper and processed goods (300 articles are made from paper — beautiful umbrellas, lanterns, fans, bags, ropes, napkins, even cloth, table furnishings, suit cases, etc.), silk goods, toys of wood, porcelain and paper and celluloid goods (combs and toys sold all over the world). But even in these industries, imported goods are used as secondary raw materials. Take for example celluloid. The main raw materials are cotton rags, nitric acid and camphor. Cotton rags are imported from abroad and although Japan was self-sufficient in camphor before the war, she may have to import camphor from Formosa (her former colony) if she wants to expand her celluloid industry. In ceramics also some of the glazing materials must be imported from China. Some of the finest ceramics in Japan are the products of home industries and not of large factories.



CHAPTER X

RURAL INDUSTRIES OF JAPAN

Japan has fifty thousand factories in farm villages and this number is increasing constantly.

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In 1937 seventy-five per cent of the farmers worked only on farms, 25 per cent engaging also in outside work — rural industries. In 1938, fifty-four per cent farmers also held supplementary jobs. In 1941, 58.1 per cent, in 1942, 61.5 per cent and in 1943, 65.1 per cent farmers had supplementary jobs — CHUO KORAN.

Japan has fifty thousand factories (employing more than five workers) in the farm villages, and this number is increasing constantly according to a recent estimate by Mr. Ueda in a Japanese magazine. The Government is training village technicians for rural industries in 68 model factories. Short courses in agricultural industries have been instituted and farmers are given free training. Both boys and girls, who have finished their seven years' primary course are recruited for industrial education.

ABSORBING SURPLUS LABOUR

The main objects for encouraging industrial centres in the rural areas are the absorbing of surplus village labour, avoiding congestion of unnecessary industries in the cities, utilising raw materials on the spot and raising the standard of income of farmers by providing them with side jobs to do in their leisure months.

The following figures indicate the proportion of farmers engaging in side jobs in addition to their farm work:—

In 1937, 75 per cent of farmers worked only on farms, 25 per cent engaging also in outside work. In 1938, 54.3 per cent held supplementary jobs, in 1941, 58.1 per cent, in 1942, 61.2 per cent.

In 1943, with war efforts reaching their highest point and the total number of farms increasing, 65.1 per cent of farmers were engaged in side jobs. In the years from 1944 to 1946 the total number of farms continued to raise, lower bracket farmers losing their wartime jobs, and some war workers becoming small-scale farmers. The percentage of farmers with side jobs decreased to 46.4 in 1946, while 53.6 per cent were dependent solely upon farming for their livelihood. The average size of the farms upon which they depended was diminishing simultaneously.¹

The Government is anxiously encouraging farmers to take up side jobs in the rural industries in order to stabilise the rural economy of Japan. More and more soldiers are returning home from Manchuria and they are being settled in villages and provided with jobs in rural industries since the large industries will take a few years to regain their pre-war glory.

PLAN OF RECONSTRUCTION²

The Government of Japan has recently (June, 1948) evolved a plan of rural reconstruction after the war. The preamble states that in order to reconstruct the national economy of Japan co-operation between agricultural resources and industry is essential. The best and the most profitable utilisation of raw materials can be made in the villages, hence the Village Industries Societies which take care of rural industries are advised to evolve ways and means to secure maximum co-operation between village capital and rural labour. The Government has laid down:

(1) That the centres of the industries listed in the plan should be located in agrarian areas, seaside villages, on the mountain side and in the green valleys where raw materials are available.

(2) The capital for such enterprises must be raised co-operatively from the villagers alone.

(3) The labour, as far as possible, should be recruited from the vicinity, exceptions may be made in certain cases.

(4) Raw materials should be locally available, exceptions are permitted because sometimes they are unavoidable. For instance, a noted village centre of bamboo industry relies on

¹ Kurihara in the Chuo Koron (monthly journal).

² This was quoted by the Congress President in his address from the MSS of my book so kindly revised by him.

supply of bamboo from an area fifty miles off.

(5) There is no limit on the sale of an industry provided the manufactured articles are in demand in Japan or abroad.

(6) The manufactured goods must be of a high level and different varieties should be encouraged to cater to different tastes.

(7) The Village Industries Society will have full authority to supervise the rural industries.

(8) The Society will help in raising capital, in organising industries, introducing new techniques, supplying raw materials and disposing of manufactured goods.

(9) The Society will maintain strict watch on the quality and quantity of manufactured articles and in fixing sale prices for local markets.

(10) The Society must have close contacts with agrarian, marine and forest societies in the rural areas.

(11) Capital aid will be provided by the Central Agrarian Bank when the Village Industry Society submits a plan after a thorough survey of the industrial scheme and the necessary statistics.

120 VILLAGE INDUSTRIES

The list of rural industries, most of which I have personally witnessed, is unbelievably ambitious and those of us who think village industries mean only gur makling, honey culture and coarse cloth and coir manufacture will be rather startled to know that the Japanese Government officially lists the following (among others) as rural industries to be encouraged by the Village Industries Society which works under the patronage of the Ministry of Agriculture.

I. Food Industry.

1. Wheat flour making.
2. Potato flour.
3. Sweetpotato flour.
4. Starch from Corn and Potato.
5. Sugar.
6. Sweetpotato glucose.
7. „ whisky.
8. Potato Glucose.
9. Apple wine.

10. Grape wine.
11. Orange wine.
12. Meat.
13. Fish.
14. Soyabean paste.
15. „ cheese.
16. „ milk and curd.
17. Pickles and jams.
18. Candy.
19. Dairy milk.
20. „ butter.
21. „ cheese.
22. Canning of fruits and vegetables.
23. Cultivation of mushrooms (brings one crore annually).
24. Geese fat.
25. Poultry.
26. Pork products.
27. Duck and fowl.
28. Pickled frogs (considered a great delicacy).
29. Frozen fish.
30. Honey culture.
31. Tea.
32. Peanut milk.
33. Peanut butter (Peanut can be used in 102 ways).
(Japan used to export milk and butter before the war).

II. Sea Products.

1. Sea-weed.
2. Agar-agar.
3. Sea-weed products.
4. Spungeculture.
5. Shell manufactures.

III. Wood Products.

1. Veneer.
2. Furniture.
3. Barrels.
4. Artistic products from wood.
5. Wooden toys.
6. Clogs (Japanese shoes).

7. Sport goods.
8. Wood chips.
9. Pulp.
10. Handpaper.
11. Chemical pulp.
12. Card board.
13. Rough paper.
14. Thin paper for festival occasions.
15. Paper for interior decoration.

IV. Chemical Industries.

1. Chemicals.
2. Medicines.
3. Salt.
4. Dyes and paints.
5. Matches.
6. Carbides.

V. Oils and Fats.

1. Rice bran oil (it is a new industry).
2. Camphor oil.
3. Fish oil and fat.
4. Oil from cotton seed.
5. Olive oil.
6. Peppermint.
7. Candles
8. Wax.
9. Fats.
10. Tung oil (for oil paper).

VI. Textiles.

1. Silk cloth.
2. Cotton „
3. Flax „
4. Knitted goods.
5. Laces.
6. Embroideries.

VII. Miscellaneous.

1. Fertiliser.

2. Chemical fertilisers.
3. Rabbit fur.
4. Leather goods.
5. Soaps and Toilet goods.
6. Bone powder.
7. Glue.
8. Tar.
9. Soot for Indian Ink.
10. Porcelain.
11. Cement.
12. Lime.
13. Straw mats.
14. „ ropes.
15. „ boxes.
16. Tiles
17. China ware.
18. Bambooware.¹
19. Musical instruments.
20. Electric bulbs.

VIII. *Machinery.*

1. Agricultural machines.
2. Electrical machines.
3. Cameras & binoculars.
4. Bicycles.
5. Metres.
6. Torch lights & batteries.
7. Optical instruments.
8. Canning machinery.
9. Spinning „
10. Wood-cutting machinery.
11. Sewing machines.
12. Watches.
13. Iron tools.
14. Bolts & nuts.

TOPIC OF THE DAY

Industrialisation of rural areas is the topic of the day since,

¹ From Bamboo alone Japanese make 1,400 articles.

with the return of soldiers and immigrants from all her former colonies, Japan faces the grim problem of providing jobs and food for the incoming millions. Industrial magazines are full of discussions on the subject and writers and experts discuss the ways and means to solve this problem of jobs for repatriates.

SOME TYPICAL SUGGESTIONS

One of the industrial experts, Watanabe, suggests that light industry, "such as watch and camera making" carried on co-operatively, is particularly well-suited to Japanese rural districts. Hajime Mimua declares that "making bamboo articles, for which there is considerable demand in America, also is suitable for providing supplementary jobs for farmers. Christmas decorations are in great demand too." Watanabe continues: "Recently I inspected some villages where glass is manufactured. Every worker has great confidence in his own particular skill in this work, and there is much competitive spirit. But, unfortunately, they conceal their respective technical secrets from each other thereby causing lack of uniformity in the quality of their products."

FROGS FOR EXPORT

Other enterprises are discussed, including the raising of edible frogs, for which there is believed to be much foreign demand. Mamoru Hirakawa of the Ministry of Agriculture and Forestry announces that experiments are being carried out with the raising of mushroom fungus on a particular type of crushed wood, to provide feed for live-stock and thus alleviate one of Japan's acute shortages. He reports also that scientists are working to discover the easiest method of removing bitterness from acorns (obtainable in large quantities in mountainous areas) to provide a cheap and ready feed.

This is a very brief survey of Japan's rural industries.



CHAPTER XI

90 MILLION CO-OPERATORS

Japan presents an ideal picture of co-operation between Capital and Labour because in the post-war industrial organisation most factories have workers as their shareholders. Kyowa Rubber Industry Company of Osaka has sold 80 per cent of its shares to its 300 workers.

* * * *

Japan's co-operative system boasts of a village where the co-operative society controls the size of village population and the entire village income is pooled together and spent for common good. Read the story of ideal co-operation as practised in Japan.

The whole of Japan can be described as a family of 90 million co-operators. The co-operative system which was imported there from Germany found a fertile ground for its growth since the Japanese national character has co-operation as one of its strong pillars. I have been twenty times round the world. In no other country I found so much co-operation among the people — rich or poor, industrialists or laborers, shopkeepers or Government servants. Every office has some kind of a co-operative organisation, every bazar has a co-operative committee to celebrate festivals and special sales weeks when every shop is decorated like a bridal house and the result is mutual prosperity. Women have co-operative committees to extinguish fires which mostly start in the kitchens. Over 90 per cent of these kitchens are made of wood. Women have also co-operative committees to see that every housewife sprinkles water in front of her house to keep off dust. The same system is applied to all shopping centres and results in huge savings to municipalities.

BASED ON GERMAN MODEL

The system of co-operative societies in Japan was until recently based on that of Germany in many respects. In Germany agrarian co-operative societies at the end of 1933 represented 78 per cent of the total number of co-operative societies throughout the country, while in Japan they constituted 90 per cent with a membership of 3,694,000 at the end of that year. Apportioned to the size of the population 41.29 per cent of all households in the country and 65.4 per cent of all agricultural households are represented in co-operative societies.¹ Now the whole structure is undergoing important changes under the rule of the SCAP. The most important functions of co-operative societies are the operation of a credit system and the provision of facilities for joint purchase and joint sales.

The principal merchandise handled are rice and cocoons (joint sales) and fertiliser (joint purchase).

More than 98 per cent of agricultural warehouses are under the management of co-operative societies. Moreover, as joint organs for the sale of farm produce, marine and dairy products, there are also, under the management of industrial co-operative societies, facilities for marketing goods in certain specified localities. Marketing organs of the co-operative societies undertake the delivery of farm, dairy and marine products and safeguard the common interests and welfare of the producers in their respective localities.

ECONOMIC COMMUNISTS

To begin with, I present the reader a typical story of co-operation practised by residents of a Japanese village which controls the number of its residents by forcible deportation of unwanted sons whom the village resources are unable to support.

It is the story of the tiny islands of Hatsushima, steeped in mystery and legend, related by BCON, an interesting military daily.

It is a strange island, whose 400-odd inhabitants live lives of tranquility, isolated from the outside world by the often treacherous waters of the bay.

To visit Hatsushima is like finding a piece of the past.

The customs of these people have changed little since the island

¹ According to the Year Book of Co-operative Societies.

* Tables and figures quoted here are mostly taken from the Statistical Yearbook of Ministry of Agriculture and F. A. O. report.

was first populated. They have no roads, no automobiles, no telephones and no electricity. But they lead happy lives without those very things we consider essential.

THERE ARE 42 FAMILIES ON THE ISLAND AND THEY LIVE AS A COMMUNITY. THEY WORK TOGETHER AND PLAY TOGETHER, AND ALL THEIR EARNINGS ARE PUT INTO A COMMON FUND WHICH IS USED FOR THE NEEDS OF THE COMMUNITY.

When they were described as Communists in a recent newspaper article, however, the islanders were indignant. "We are not political Communists," headman Tanaka-san explained, "only economical Communists. It would be better to describe us as living by kyodo." (Kyodo translated from the Japanese means co-operation).

HATSUSHIMA, WHICH HAS A CIRCUMFERENCE OF ONLY TWO AND A HALF MILES, CAN SUPPORT ONLY A LIMITED NUMBER OF PEOPLE. WHEN THE POPULATION RISES BEYOND A CERTAIN NUMBER LOTS ARE DRAWN TO DETERMINE WHO SHALL BE DEPORTED TO THE MAINLAND. THE INCREASE IN POPULATION IS ALSO CONTROLLED BY THE FACT THAT ALL SONS OTHER THAN THE FIRST BORN TO A FAMILY ON THE ISLAND MUST BE SENT TO THE MAINLAND TO LIVE.

Living in the same houses as their forefathers, the people follow the Sodoshu religion — one of the Buddhist sects — and make their living from the sea.

The village of 42 houses and two schoolrooms lies in a quiet dell, surrounded by a wood of camellia trees. Through the wood small muddy paths meander across and around the island.

The main industry of the islanders is the collection of seaweed and shell-fish. Not far from the rocky shore young girls surface dive for tengusa weed, or heaven grass. The girls are known as "Amahs" meaning women and nuns, and are all between 17 and 20 years of age. They arrive on the island in May, and stay there working until the cold weather sets in around October.

They originally came from Toba, where they were trained in the art of diving from early childhood, and have good matrimonial prospects in view of their good health and the high wages they command.

The girls generally make by gathering seaweeds around two or three hundred yen a day. That is quite a lot when compared

with the 100 yen a day basic wage of girls employed in the offices on the mainland.

While they are working the girls wear very little in the way of clothing — the most important item being a head-cloth to keep the hair out of their eyes. They also wear thimbles to protect their fingertips when collecting the weeds. Their nakedness does not embarrass them.

The Amahs are strong and well-built, their strength and stamina increasing with the amount of diving they do. It is this fact of improvement in health rather than deterioration that has led to the employment exclusively of girls in this type of work. The islanders say that male divers soon show signs of strain, and are particularly prone to develop lung and other chest troubles after a few months of diving. Also, the girls are practically proof to the cold they experience many feet below the surface of the sea.

As a rule the girls work in depths of water between 15 and 20 feet, but sometimes they dive as deep as 30 feet. The work calls for excellent eyesight as well as good general physique, because the seabed and dark weed are barely visible through the gloom prevailing at such depths.

The Amahs, on surfacing, put the weed they have gathered into floating wooden tubs, which are periodically gathered in by men manning the boats, and the weed wrapped in nets for transport ashore.

When the boats return to the beach the girls help to haul them ashore, heaving and straining on the ropes until the boats are well out of the way of the tide.

They take frequent rest, working for an hour or two and then returning to the shore on the boats to unload the "catch" and to warm themselves by woodfires on the rocky foreshore.

Other girls — local residents — as well as men, take over the work at this point. They are employed in sorting and storing the weed in large wooden storehouses behind the beach.

At present there are about 35 girls working on the island, diving for various weeds and shell-fish.

Some of the weeds are dried in big wooden storehouses and various properties are extracted from them, including a powder which is used for making agar-agar, a kind of gelatine for medicinal use. Other weeds, after drying, are sold to wholesalers who supply them to the stores, which sell them as food. Some of these weeds

are considered a great table delicacy by the Japanese¹.

The same spirit of co-operation prevails in many small factories where workers are shareholders and therefore their own bosses.

IDEAL CO-OPERATIVE VILLAGE

Everyday and every hour of my stay in Japan wherever I went I heard of this wonderful co-operation in Japan. The leading journals are always full of articles discussing the subject.

Minoru Umizumi, and official of the Ministry of Agriculture and Forestry, sketches in IE NO HIKARI his idea of an ideal village "created by the Agricultural Co-operative Association." In Umizumi's envisioned community, former bosses and landlords "tried to gain directors' positions in the Association to control the village as they used to," but the farmers "succeeded in excluding them from the staff of the organisation." Through the Association, efforts are made to increase labour efficiency by co-operative arrangements for irrigation, use of tools and motors, and tilling of the land. The Association encourages and sponsors the use of cattle and horses. Complete utilisation of all available labour is sought. "Thus some village industries were planned. A sewing machine factory was established and many of the villagers work there. Some packing industries also are under way...other persons engage in the production of starch, sauces, and rabbit furs."

"Farmers deliver their wheat and rice through the Association," Umizumi continues, "and turn in polished instead of unhulled rice. *Nuka* (a powdered bran by-product of polishing) is used for making fertilisers and also for the manufacture of oil. The Association produces salt and rations it to members at proper prices; it also handles the distribution of fertilisers and tools. It keeps five sets of women's wedding clothes for hire, and is able to obtain working and everyday clothes by exchanging agricultural products for unused clothes in a neighbouring village. A sewing club has 150 members and a club room, and shares the use of sewing machines. Community cooking is carried on with some success in this imaginary village, and the Association employs dieticians to enforce observation of proper nutritional principles through the preparation of seasonal products and the efficient utilisation of eggs, meat, and milk." An important objective of the Association is the improvement of

¹ R. Palmer in the BCON.

kitchens. The organisation contributes 10 per cent of the expenses used for this work.

WOMEN DIRECTORS

Three or four of the Association's directors are women, who head the Women's Society. This group encourages radio listening circulates magazines, holds instructional meetings on cooking and dressmaking, and organises movie and theatre parties. The Association has a library, a nursery, and a medical office in the village. The savings of members are invested for the direct benefit of the organisation and the improvement of its agricultural activities.

AGRICULTURAL CO-OPERATIVE ASSOCIATIONS

The Co-operative Associations are the hope of new Japan and are therefore much discussed in the press.

Much of the material dealing with the new agricultural co-operative associations is of a promotional nature and is directed towards the nation's young men and farmers. Writers seek to disseminate full information about the co-operatives and their possibilities, in order to arouse the interest of all potential members. In an effort to popularise the organisation programme, officials of the Ministry of Agriculture and Forestry often contribute original articles for magazines and appear in round-table discussion groups.

The co-operatives are expected to seek better agricultural production methods, carry on group purchasing and selling activities, encourage technical improvements, promote co-operative farming and sharing of tools, undertake community projects which are too large for individual farmers (who have previously depended on the "landlords' benevolence") and to sponsor local industries.

NEED, PURPOSE, AND AIMS

Takao Hattori, a Ministry of Agriculture and Forestry official, explains the purpose of the new agricultural co-operative associations and the processes of their formation in the youth magazine *SEINEN*. Beginning with a description of the militaristic and feudalistic characteristics of the wartime compulsory Agricultural Association (Nogyokai), Hattori tells why this organisation is to be dissolved and replaced by "a new system founded on a spirit of democracy." He discusses the procedure to be followed in organising the new co-operatives, stressing that the objective is to gain the participation

of as many farmers as possible in a truly co-operative organisation "which is really wanted by the farmers. The new co-operatives must be formed democratically by the farmers," he warns, "and must not be dominated by bosses and those who formerly held power."

The Agricultural Co-operative Association, Hattori writes, "is a co-operative organisation of all the farmers, and is designed to raise the social and economic standards of the villages. It not only must represent the interests of the farmers justly, but also remedy the defects of Japanese agriculture in order to increase production. By co-operation farmers can accomplish important things which cannot be undertaken by individuals. The more practical use the farmers make of the co-operatives, the more they will benefit. The important task of agricultural co-operatives is the democratisation of rural villages. Agricultural co-operatives afford the individual farmer the best means of exercising his power to establish democracy in the villages. It is hoped that farmers will keep themselves well informed about agricultural co-operatives and will create fine organisations, thus assuring themselves of a prosperous and happy future."

Yukio Ishibashi similarly explains the significance of the new co-operative associations in an article for *NOMIN*. "The most important characteristic of the agricultural co-operative associations is that they are the farmers' own independent organisations for the modernisation of farm operations and the improvement of agricultural methods through mechanisation of farm villages and full realisation of the land reform programme." Although the scale of farm operation is small and the farmers' economy is not satisfactory, land reform has eliminated the major obstacle to production increase and modernisation of methods. And now the agricultural co-operative associations are coming into being in order to accomplish social and economic changes, Ishibashi declares.

The co-operatives must sponsor improvements in many aspects of farm life and operations. Ishibashi mentions (1) encouragement of comprehensive, many-sided farm operations with stress on the utilisation of domestic animals; (2) obtaining and distributing proper farm implements, and introducing machines and cattle-powered tools to replace manual labour; and (3) improvement of farming methods and techniques on a scientific basis.

Ishibashi also discusses the necessity of reorganising and com-

bining isolated and dispersed plots of farmland, establishment of community institutions, joint handling of supplies and funds, merchandising of products, co-operative farming and community utilisation of animals and tools. Finally, he stresses that "the agricultural co-operative association should have capable, ednocratic-minded agricultural technicians to serve as consultants for the scientific development of farming."

Kanae Hatano, an ex Minister of Agriculture and Forestry also declared at a JITSUGYO NO NIPPON round-table that it was important to push the development of agricultural co-operatives because "Land Reform is not a sufficient programme unless the small landholders can combine in co-operative organisations and advance towards co-operative production." Furthermore, "when Japanese agriculture must compete with that of the rest of the world, it will have to develop many-sided operations, and for this we must rely on the agriculture co-operative associations." Hyakuju Kurihara, another Ministry official, voices his opinion that the co-operatives must seek to promote increased agricultural production, while Hatano stresses that he expects them to accomplish "democratisation of the farm villages."

TASKS OF THE CO-OPERATIVES

"Some Ideas on Productive Undertakings of the Agricultural Co-operative Associations" are offered by Jun Kurata of the Ministry of Agriculture and Forestry in *KEIEI JITSUMU*. The wartime Agricultural Association (Nogyokai) and the Industrial Association, its predecessor, made no active contribution towards improvement of agricultural methods and production. Both these organisations assisted the farmer by handling farm products, lending money, and purchasing required necessities, but they did not seek to improve Japanese agriculture fundamentally. During the war some co-operative work and the shared use of agricultural tools were encouraged by the *Nogyokai*, but this co-operation was not of a long-range constructive nature and "was required to cope with the various difficulties arising from the war situation, such as the general shortage of rural labour and the lack of cattle and farm machines. Conditions were so severe that many farmers whose sons had been called into service were forced partially to abandon their farm projects." Co-operative cooking, washing, and looking after children were also practised to some extent, "but all these activities arose only out

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A HISTORY OF THE JAPANESE PEOPLE
FROM THE EARLIEST TIMES TO THE PRESENT
BY DR. K. KURIHARA
VOLUME I
THE JAPANESE PEOPLE
FROM THE EARLIEST TIMES TO THE PRESENT
BY DR. K. KURIHARA
VOLUME I

of mutual interdependence resulting from the war situation and from the vital importance of meeting temporary agricultural needs."

Yet in these beginnings, Kurata stresses, there were potential "buds of active co-operation," and if the aim, organisation, and atmosphere are revised, they may furnish the beginnings of widespread co-operative activities. Because of the small size of the farm units, the land reform programme cannot be successful in itself, unless the farmers join in co-operative efforts. Co-operative endeavour is necessary for production of fodder and fertiliser, for breeding high quality seedlings, and for the fight against insect damage and for repairing destruction caused by natural calamities.

The aim, Kurata emphasises, must be the raising of agricultural productive levels. "It is not enough for the members of a co-operative organisation simply to combine their labour and their implements; they must reorganise their methods efficiently so as to improve their productive system." It is not a mere "abstract" co-operative group that is to be organised, he reiterates. It is vital "that all farm activities — from the improvement of the land to the gathering of the harvest — be examined for ways of improvement which will serve to raise production levels, and that rational operating systems be formulated."

The first impetus toward an agricultural revolution, Akira Oshima asserts in *SHINSEI NOSON*, has come from the land reform programme, which is not a result of the farmers' own efforts but originates from outside sources. "This will be carried out whether the farmer likes it or not. Further revolution which is required involves not land ownership, but farming conditions themselves." This latter "revolution," Oshima insists, must be accomplished by the agricultural co-operative associations, and its success depends on the attitude of the farmers. "The way in which the farmers and the farmers' unions autonomously organise and direct the agricultural co-operative associations is the most important question faced by the farmers' movement."

Increase of agricultural production, through co-operative farming, improvement of efficiency, and mechanisation, cannot be achieved by any law or any comprehensive system imposed from without, "but requires great efforts on the part of the farmers themselves." Farmers have long been held in ignorance and comparative bondage, Oshima stresses, and the desire to improve their own condition must be inculcated in them through a campaign of education and

enlightenment. "The agricultural co-operative association must take up this task."

TWO-FOLD FUNCTION

Katsura Hiraki of the Ministry of Agriculture and Forestry sees the function of the agricultural co-operatives as two-fold — "to reach higher productive levels through co-operative work by the farmers, and to improve the farmers' position in society, so that they may contribute more to the national economy." Speaking at a *NORIN JIHO* round-table, Hiraki declared that the formation of agricultural co-operatives and the land reform were to be complementary programme which "through their reciprocity should furnish the motive power toward modernisation of Japanese agriculture."

MIRACLES OF CO-OPERATION

I must refer in this chapter an ideal example of co-operation in Japan. This is the story of Kyowa Rubber Company of Osaka one of whose directors (a worker) met me on a street car. Read the story in his own words:—

In March 1945, the Tsumori Branch Factory met with complete destruction by fire in an air raid. In June of the same year, the factory of the head office was also partly destroyed in an air raid, 20 per cent of the premises being burnt down.

In October 1945, we set about the reconstruction of the war-damaged factories. In December, the rehabilitation of the head office factory was completed, and in March 1946, that of the tyre factory was also accomplished.

In January 1947, the capital of the concern was increased to 2,500,000 and facilities for the production of tyres for export purposes were newly installed.

In August, the capital was further increased to 5,000,000 to cope with the requirements of the reopened foreign trade and the equipments for the manufacture of tyres, tubes and various other kinds of rubber goods for export purposes have been expanded. Thus at present the Company leads in its production of bicycle tyres, tubes, insulating tapes and rubber bands, in this country.

As the word Kyowa, meaning "co-operation" in Japanese, which has crowned the company's name ever since its inauguration, the company is conducted on the basis of complete co-operation

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between Capital and Labour. The entire number of our employees, 300 in all, constitutes our shareholders accounting 80 per cent of the company's capital. These workers are participating in the management of the company through the representatives chosen by them.

They recognise that the reconstruction of the State and the improvement of their living condition depend upon a flourishing export industry, and this realisation enables them to make systematic efforts towards production of superior goods.

Everything in Japan is in the melting pot and so is the structure of co-operative societies. The rules and regulations may be new and changed but the spirit of co-operation is eternal and is one of the chief secrets of Japan's rapid revival soon after the war.

AGRICULTURAL CO-OPERATIVES

Agricultural co-operatives in Japan have a long history, but it was not until 1900 that the first co-operative legislation was enacted under the name of the Industrial Co-operative Law. Since then co-operative movement spread over the country, increasing rapidly the number of co-operatives and by 1920 almost all rural villages and towns had founded one farmers' co-operative association at least. The total number amounted to 13,442 in that year. In 1910 and after, the national federations of local co-operatives were successively organized along the lines of their functions, that is, credit, marketing, purchasing and land use. Thus the system of co-operative associations was strengthened and consolidated although it could not be free from the Government intervention.

During the World War II, the Government control was intensified over the co-operatives, which were eventually transformed as semi-governmental agencies with compulsory membership according to the national policy to regiment farmers in support of the war.

After the end of the War, the co-operatives were given a new life under the Agricultural Co-operative Association Law of 1947, which was to develop them as democratic organizations by abolishing the government-dominated ones. The law provided, among other things, for the universally accepted co-operative principles such as voluntary membership, one man one vote, non-profit and participation dividends.

By the end of March 1957, the number of co-operatives on the local level amounted to 32,985, of which 12,839 were general-purpose

co-operatives and the rest were specialized ones. Every rural village or town in Japan has one or more co-operatives of the former type. The members, some of whom belong to more than one association, are said to amount to about 10 million in aggregate. This rapid increase resulted from random foundation of various co-operatives as they were privileged to control distribution of agricultural products on behalf of the Government under the controlled economy immediately after the War. Consequently, there remain still many associations whose financial status is not stable. In case of general-purpose co-operatives, for instance, the average amount of capital is only about 2,000,000 yen per association, or about 4,000 yen per member. This means that the average number of regular members who pay the fee is only about 500 households per co-operative. Those with less than 300 member households occupy 40% of total general-purpose co-operatives.

A general purpose co-operative not only performs marketing of various crops, purchasing of farm supplies and household goods, and processing of members' products but also receives deposits from members and makes loans to them. A specialized co-operative association confines its activities to handling specific products such as cocoons or livestock products. Reclamation co-operatives which are generally organized in reclamation areas and newly settled communities are also classified as the specialized ones although they perform multiple functions except credit.

Local co-operatives are also classified into stock and non-stock ones. General purpose co-operatives are mostly of the former type while specialized co-operatives are of non-stock.

Local co-operatives are federated on sub-prefectural or prefectural level. The functions of a federation are classified into three groups, credit, trading, and others. As the law provides that each federation shall not take up more than one function of these three, a general purpose co-operative association must affiliate itself with at least three federations of the respective group in order to achieve its "general purpose."

A credit co-operative federation on prefectural level as a member and holder of capital stocks of the Central Co-operative Bank of Agriculture and Forestry, can receive deposits from and make loans to local co-operatives. A trading co-operative federation handles either marketing or purchasing or both for local co-operatives and many of this kind of federations own and operate processing factories

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Table I. Number of Agricultural Co-operatives by Function

S t o c k					
Function Year	General purpose	Sericulture	Livestock	Reclamation	
1954	13,191	149	1,456	2,121	
1955	13,154	177	1,527	2,242	
1956	12,986	152	1,510	2,266	
1957	12,839	160	1,521	2,270	
N o n - S t o c k					
1954	774	9,857	614	3,756	
1955	860	9,781	1,620	3,151	
1956	743	9,058	1,604	2,992	
1957	702	8,687	1,555	2,793	
S t o c k					
Function Year	Horticulture	Rural Industry	Others	Total	
1954	529	801	215	18,463	
1955	604	753	202	18,659	
1956	609	729	189	18,441	
1957	609	687	194	18,280	
N o n - S t o c k					Grand Total
1954	193	146	1,565	16,905	25,368
1955	207	92	750	16,461	35,120
1956	195	86	729	15,407	33,848
1957	189	79	701	14,705	32,985

for farm products. Trading federations on prefectural level are also federated into the National Federation of Agricultural Co-operative Marketing Associations and/or the National Federation of Agricultural Co-operative Purchasing Associations.

Specialized co-operatives have their federations on sub-prefectural or prefectural level which affiliate themselves with the one on national level.

In order to promote the development of agricultural co-operatives, unions of local associations are established in each prefecture and in Tokyo. Functions assigned to them are to instruct in better management of member co-operatives, to supervise them, to give

education and information service, to make co-ordination among members' activities and arbitration of disputes among members, to perform investigations on co-operatives and related matters and to render other services. In case of a prefectural union, local co-operatives and prefectural federations are its members and in case of the central union in Tokyo, prefectural unions and their member co-operatives are also included in its members.

Table II. Federations of Agricultural Co-operatives by Function
(March 31, 1956)

Function	Size of Working Area				
	Part of prefecture	A whole prefecture	More than two prefectures	Nation-wide	Total
Credit	1	46	—	—	7
Economic	11	47	—	—	58
Marketing	16	—	—	2	18
Purchasing	3	—	—	2	5
Welfare	14	24	1	1	40
Insurance	—	40	—	1	41
Transportation	11	4	—	1	16
Sericulture	265	33	1	3	302
Livestock	289	53	—	7	349
Horticulture	102	7	—	5	114
Rural Industry	89	4	1	1	95
Reclamation	21	38	—	1	60
Guidance	14	9	—	2	25
Miscellaneous	28	11	—	1	40
Total	864	316	3	27	1,210

Since all farmers in Japan affiliate with one or more co-operatives, the volume of co-operative business is considerably large. It has greatly expanded compared with so-called "industrial associations" in the prewar period. The quantity of goods handled by the general purpose agricultural co-operatives in 1955 increased over that handled in 1930 as follows: rice 8.5 times, wheat and barley 2.7 and fertilizers 2.6. By taking 1951 as the base year, the index increased to 210 for savings, 319 for loans, 154 for purchased goods and 158 for marketed goods. The percentage of business transactions conducted by agricultural co-operatives in rice, barley, wheat and

fertilizers is extremely high, composing as it did in 1955 about 76 and 45% respectively of the marketing and purchasing activities of the general purpose co-operatives, about 87 and 48% respectively of the prefectural federations and about 94 and 74% respectively of the national federations. From the standpoint of farm economy, the percentage of utilization of agricultural co-operatives by farmers are about 95% for rice, about 80% for wheat and barley and about 70% for fertilizers. Thus, the business of agricultural co-operatives largely depends upon the various systems of control, and the handling of uncontrolled goods is a minor part of their business.

In the credit business of co-operatives, except for the profits earned by the handling of rice, wheat and barley, funds for loans are meager and the percentage of money loaned against savings was only about 49% in the general purpose co-operatives and about 51% in the prefectural federations. Flow of capital through the co-operative system is not always smooth and the flow of capital to the banking business outside the co-operative system is increasing. Furthermore, loans provided to enterprises outside the system are also increasing.

Another difficulty the co-operatives are facing now, is that they have scanty staff of technical advisers on farm management. Only 4,300 general purpose co-operatives or 36% of the total have such technicians. The total number of advisers employed is about 6,000 or 0.6 advisers per co-operative.

AGRICULTURAL CREDIT

It is quite natural for commercial banks to be reluctant in making loans to such an industry as agriculture which is consisted of millions of small subsistence farmers subject to frequent natural hazards, such as typhoon, flood and drought.

Therefore, it is necessary to found some special institutions which provide credits to such needy farmers. The Central Co-operative Bank for Agriculture and Forestry is one of such institutions which was established in 1923 under the Agricultural Co-operative Association Law enacted in the same year.

Loans are made by the Central Co-operative Bank to agricultural co-operative federations, local agricultural co-operatives and others whether directly or indirectly through prefectural federations. Of these organizations, local general purpose co-operatives and agricultural credit federations which were organized under the Agricultural

Co-operative Association Law of 1947, are primary facilities supplying loans to farmers through local unit co-operatives.

There are 12,704 local general purpose co-operatives in 1957 which mainly serve as banking and credit institutions for member farmers. And these local co-operatives are, in turn, members of one of 47 prefectural credit federations which are member stockholders of the said Central Co-operative Bank.

About 60 or 70% of loans made by the Central Co-operative Bank was for short term in 1956. Funds for loan are chiefly supplied from the deposits made by agricultural co-operatives in the Bank and the source of these deposits is, of course, from farmers' money put in local co-operatives. The deposits in the Central Co-operative Bank seasonally fluctuate quite widely as farmers have money to deposit around the year end when they have sold their rice and withdraw it to buy fertilizers and other productive means during March-May.

The requirements for loans are also rigid in this period of preparation for farming. Consequently, it is a very important function of the Central Co-operative Bank to adjust the seasonal fluctuations of deposits and loan requirements by operating the surplus fund profitably in post-harvest season and acquire necessary fund to meet farmers' demand for money in busy season.

Since the advent of the advance sale contract system in 1955, about 20% of payments have been made in June and July, thus extending the period during which payments are made. Consequently, seasonal fluctuations in financial reserves of the Central Co-operative Bank as well as in farmers' demand for money have been comparatively narrowed.

Table III. Loans Made by Agricultural Central Co-operative Bank
(December 31, 1956)

(Unit: million Yen)

Loans on bill	25,930
Instalment loans on deeds	29,438
Bills discounted	1,583
Agricultural bill	627
Short term loans	63,568
Call loans	7,938
Total	129,129

Since the financial reserves in both co-operatives and the Central Co-operative Bank are not always sufficient for meeting the demand of borrowers, the agricultural bill system was set up in 1948 to satisfy it for short term credit. Under the system, short term loans are available for farmers to purchase fertilizers, insecticides, farm implements and seeds through signing an agricultural bill, a kind of promissory note. A bill is secured by crop mortgage on rice, wheat and barley. It is accepted by a local co-operative which obtains loan from a prefectural federation against it. A federation in turn discounts it with the Central Co-operative Bank. The Bank of Japan finally accepts the bill as collateral if the Central Co-operative Bank requires. This system has worked very successfully on the grounds that agricultural co-operatives purchase 95% of rice directly from farmers on behalf of the Government under the present rice collection system.

In order to meet the farmers' demand for long term credit for advancement of agricultural productivity through improving land and other productive means and facilities, the Government established the Agriculture, Forestry and Fisheries Finance Special Account in the National Treasury under the Agriculture, Forestry and Fisheries Loan Law enacted in 1951. This special account was incorporated into the Agriculture, Forestry and Fisheries Finance Corporation in 1953. Loans are made by the Corporation mainly for land improvement, repairs of irrigation and drainage facilities, establishment of co-operative warehouses and workshops, purchase of fishing boats and gears, etc. The total loans furnished by the Corporation amounted to 147,400 million yen from 1951 up to the end of 1956, covering 62,759 items, most of which had been applied for by co-operatives.

It was referred to in the preceding section that the Corporation was responsible for loans from the Owner Farmer Maintenance and Establishment Fund. These new farm loans are available for farmers to stabilize their farm economy in order to cope with the situation existing after the agricultural land reform. However, the fund is not sufficient enough for achieving its aim for the fostering and consolidating of stabilized owner farmers.

Long term government loans have been also available for settlers in reclamation project areas since 1946. These loans are furnished by the Government for building shelters, purchasing farm implements, machineries and animals, and other production costs.

Table IV. Loans Made by Agriculture, Forestry and Fisheries Finance Corporation

(Unit: million yen)

Object	Year	1954	1955	1956	Total 1951-1956	1957
Land improvement		12,876 (49.2%)	13,188 (45.7%)	10,327 (33.5%)	67,032 (45.5%)	11,963 (34.2%)
Forestry		3,569 (13.6%)	3,250 (11.3%)	3,273 (10.6%)	20,778 (14.1%)	3,466 (9.9%)
Fisheries		2,409 (9.2%)	3,090 (10.7%)	3,600 (11.7%)	11,867 (8.1%)	3,348 (9.5%)
Salt making		1,140 (4.4%)	1,140 (3.9%)	2,600 (8.4%)	7,664 (5.2%)	1,700 (4.9%)
Communal facilities		5,682 (21.7%)	4,629 (16.0%)	3,598 (11.7%)	26,981 (18.3%)	3,123 (8.9%)
Owner Farmer Establishment Funds	}	—	2,005 (6.9%)	4,491 (14.6%)	6,496 (4.4%)	5,000 (14.3%)
Others		505 (1.9%)	1,584 (5.5%)	2,914 (9.5%)	6,574 (4.4%)	6,400 (18.3%)
Total		26,180 (100.0%)	28,886 (100.0%)	30,803 (100.0%)	147,392 (100.0%)	35,000 (100.0%)

Their total up to the end of 1956 from 1946 amounted to approximately 140 billion yen equivalent to the value at the said time.

AGRICULTURAL INSURANCE

Japan is one of a few countries where natural calamities inflict most serious and frequent devastations on the land. Losses and damages incurred on Japanese agriculture are tremendously big due to typhoons, droughts, frost and cold weathers, earthquakes, and high humidity promoting heavy disease and insect infestations of livestock and crops. If the rice acreage damaged by such natural hazards be taken for example, damages by typhoons and floods covered about 1,000,000 ha., by droughts about 46,000 ha., by cold weather about 410,000 ha., by diseases about 2,200,000 ha., by insects about 1,000,000 ha. and by others about 40,000 ha., totalling at more than 4,700,000 ha. in 1956. Those figures do not include the damaged area of upland rice fields. Losses in quantity incurred on paddy production only in lowland reached to more than 1,500,000 m/t in the same year.

The agriculture in this country is, therefore, an enterprise by so far from attracting commercial insurers. Consequently, the Government has had to play a role of insurer since 1929, when the

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agricultural insurance was first introduced to livestock production under the Livestock Insurance Law. Later in 1939 the Agricultural Insurance Law was enacted to cover the staple crops such as rice, wheat and barley and mulberry production. In 1943, the insurance of the staple food crops as aforementioned was made compulsory for producers, whose premiums, however, were partly to be borne by the Government.

The agricultural insurance system is now established under the Compensation Against Agricultural Loss Law enacted in 1947 which has merged the crop and livestock insurances through a number of revisions made on the original law. Under the new law, the insurance of staple food crops including rice, wheat, barley and oat and sericulture is made compulsory and privileged with provision of the Government subsidy. The insurance against death, disuse, disease and injury of cattle and horses is also made compulsory on local option basis and is subsidized while that against such of swines, sheep and goats as well as such of new-born livestock including cattle and horses is on voluntary basis and not eligible for the Government subsidy. Not only buildings and farm facilities but also special crops under certain circumstances can be insured on voluntary basis without being accompanied by the Government subsidy.

The agricultural insurance business had been carried on only by local insurance associations organized in villages before the revision of the law in 1957 which authorized village municipal offices to take over the insurance business from such associations, if required by the associations.

The membership of an association is compulsory to all growers of staple food crops and all breeders of cattle and horses in most areas in Japan. Federations of those local associations are organized on prefectural level and a special account for insurance is maintained by the central government. Thus the crop and livestock insurance through a local association is re-insured by an associated prefectural federation whose action is in turn re-insured by the national government, which bears about 65% of the cost of premium on crops and about 50% in insurance against death and disuse of cattle and horses.

However, there is still a number of problems to be tackled in operating satisfactorily the agricultural insurance in Japan. For instance, there is a great technical difficulty in quickly and correctly estimating the amount of damage inflicted on each of tens of thousands

small parcels of land. Beside, the expenditures will considerably increase if the insurance business be carried on properly, making dues bigger on the part of farmers. It is seen in the increase of operating expense of associations. Both the amount of office expenses and the levies on farmers have gradually increased until the total reached 6.2 billion yen including 2.4 billion borne by the National Treasury in fiscal year 1956.

Table V. Operating Expenses for Agricultural Insurance Borne by State and Farmers

(Unit: billion yen)

Year	Object	Premium by State	Office ex. by State	Premium by f.	Office ex. by f.	Total ex.
1954	Paddy	6.0	—	4.5	—	—
	Wheat and barley	1.0	—	0.7	—	—
	Sericulture	0.4	—	0.5	—	—
	Livestock	0.7	—	1.3	—	—
	Total	8.1	2.4	7.0	3.0	20.5
1955	Paddy	6.8	—	4.5	—	—
	Wheat and barley	1.0	—	0.7	—	—
	Sericulture	0.5	—	0.5	—	—
	Livestock	0.6	—	1.3	—	—
	Total	8.9	2.4	7.0	3.8	21.1
1956	Paddy	—	—	—	—	—
	Wheat and barley	0.9	—	4.5	—	—
	Sericulture	0.5	—	0.5	—	—
	Livestock	0.6	—	1.8	—	—
	Total	8.7	2.4	7.5	3.8	22.3

Among other difficulties, there is one in regard to collection of premiums. Farmers engaged in cultivation of crops and in sericulture must pay premiums to an association to which they belong. But those whose crops are stabilized and whose threat of loss is negligible, are apt to fail to pay their premium.



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CHAPTER XII

HOW JAPAN GROWS MORE?

Believe it or not, Japan produces three times more rice per acre than we in India do.

* * * *

The world's highest record of milk production is held by a Japanese cow and out of ten records of egg production, seven records are held by Japan.

* * * *

Only about 16 per cent of the land area of Japan is cultivated. About one-third of the land is double or multiplecropped. From this land (twenty million acres) Japan extracts roughly 80 to 85 per cent of food required.

Japan has lessons for us not only in her wonderfully organised cottage and small industries but also in her agriculture and farming methods. We have been talking of "Grow More Food" and yet every year we have been importing more and more food because our food supplies are proving smaller and smaller. If we really want to grow more food we will have to go in for cultivation by means of tractors. A country of small farms like ours should derive much benefit from the Japanese farming methods which are responsible for producing three times more rice per hectare than we in India do despite our hardworking farmers. The fertiliser system of Japan and China (which I have discussed at length in another chapter) deserves our closest consideration, because fertiliser is the main secret of the very high production of food in Japan.

In the 60 years preceding 1940, agricultural production in Japan showed remarkable increase, resulting primarily from increased yields per unit area of land rather than from an extension of the

cultivated area. This is best illustrated in the case of rice, the mainstay of Japanese agriculture. Japanese rice yields are much higher than those in other major rice-producing countries. During 1931-34 rice yields in southern and eastern Asia were:—

COMPARATIVE RICE YIELDS¹

Countries.	Cleaned Rice (Metric tons per hectare).
Japan	2.8
China	1.7
Formosa	1.7
Korea	1.2
British Malaya	1.1
Java and Madeira	1.0
India	1.0
Burma	1.0
Siam	1.0
Philippine Islands	0.8
French Indo-China	0.7
Ceylon	0.6

HOW THEY DO IT

The high yields in Japan have resulted from the ample use of man power, improved rice varieties, abundant use of fertilisers and improved agricultural practices. Such intensive farming has accentuated the ill effects of multiple cropping, as well as those associated with continuous cropping.

WORLD'S BEST FARMERS

Our farmers have the reputation of being very hardworking and enterprising but they cannot beat the Japanese farmer in his ingenuity in making the best out of the smallest piece of land. Japanese farms are like artistic orchards and you feast your eyes on them while travelling in a Japanese train. Not an inch of land is wasted by the Japanese farmer. In post-war Japan I saw foot-paths even on the main roads in Tokyo and Osaka being utilised for growing wheat. Every bombed house has been converted into a small farm where wheat or vegetables are grown. A huge temple compound on the Tokyo-Yokohama road has been converted into

¹ SOURCE: Wickizer, V. D. and Bennet, M. K., *Rice Economy of Monsoon Asia*, Stanford University, California, 1941.

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a model farm. Every inch of land along the railway line is being utilised for growing food, as it is done in England, but think of the millions of acres of land lying waste in India along our railway lines alone. If the farmers working on the land adjoining railway lines are permitted to grow even one crop after the rains how much food can be had for practically nothing. I will deal with our problem in the next chapter. Now let me tell you more about Japan.

The Japanese farmer believes in incessant hard work. He has a deep affection for the land and all things agricultural. He sincerely believes earth to be mother the of all things that sustain mankind. He literally worships Dhartimata — Mother earth. He does not believe in leaving crops to the mercy of kismet (fate). He believes in scientific agricultural management. He believes that good agricultural results cannot be attained by individual farmers working separately and hence he concentrates on co-operation with fellow farmers. Japanese farmers are the best farmers in the world whether they are in Japan or anywhere else. In Honolulu, California, Brazil and Peru they had established very prosperous settlements before the war.

HELPFUL GOVERNMENT

The Japanese Government, whatever its mistakes in being involved in a suicidal world war, has always been very helpful to the farmer. No wonder the Japanese farmer had the most prosperous and happy time during the war.

Government had organised a unique system of agricultural co-operative societies which form a kind of people's Government in every village. The official system of food control (introduced years before the war) made the farmers a truly prosperous community. Government has always helped the farmer by introducing new agricultural techniques, new varieties of seeds, a chain of research stations all over Japan, efficient machinery suited to the characteristics of Japanese agriculture, dissemination of agricultural knowledge, reclamation of lands and supply of chemical fertilisers. Efficient machinery is bought by co-operative societies and distributed to members or used co-operatively. Stock raising and dairy farming are encouraged as side lines by farmers.

Cottage and small industries are encouraged and efforts are made to see that no farmer is unemployed but adds to his income and the national income by learning some industry to keep him

busy in the non-farming season.

As in most countries, increases in yields in Japan have been brought about by a number of factors, including especially improved methods of cultivation, extensive use of commercial fertilisers, better control of insect and plant pests, and better varieties of crops says Mr. Solomon, an American investigator.

In a paper, a copy of which he gave me for my use, he writes:—

An understanding of why yields are relatively high and of how improvements have been brought about depends to a considerable extent on a knowledge of Japanese agriculture. As is well-known, the four islands—Kyushu, Shikoku, Honshu, and Hokkaido—which constitute nearly all of post-war Japan, are mostly mountainous. Only about 16 per cent of the land area, or 15,000,000 acres, is cultivated. The cultivated land is divided among about 5,500,000 farms, averaging 2.7 acres each. About one-third of the land is double or multiplecropped, so that about 20,000,000 acres of crops are grown annually on the 15,000,000 acres of land. From this land Japan extracts roughly 80 to 85 per cent of the food required for her 80,000,000 people, plus considerable quantities of non-food crops for domestic use or export.

The cultivated land consists mostly of coastal plains and narrow river valleys extending up into the mountains, the latter often no more than a few rods wide at the upper extremities. The largest plain is the Kanto Plain in which Tokyo is located. This comprises about 3,600 square miles, roughly equal in size to two Iowa countries. The need for cultivated land is further emphasised by the terraces found in nearly all parts of Japan, especially in the older sections such as in Kyushu and along the inland sea. They extend up the hill or mountain sides, often to several hundred feet, and frequently are walled with rock to hold the soil in place. One cannot fail to marvel at the relatively enormous amount of labour required to level the land and build the walls to provide, in many cases, no more than a few square yards on which a few handfuls of rice or other crops may be grown. They can be rationalised only by remembering that they are the accumulated result of several hundred years of effort.

A conspicuous feature of the landscape of certain areas in Hokkaido, especially the Obihiro district east of Sapporo, is the wind-breaks consisting of one or more rows of trees that have been planted to prevent soil blowing. The land was surveyed in blocks

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300 meters square and trees were then planted on all borders, the net result being that each block is surrounded on all sides by trees. The soil is a volcanic ash easily blown by the lightest wind. Rainfall in this area is adequate for most crops. The situation is therefore quite different from that in the Great Plains of the United States where wind-breaks have been strongly recommended.

IMPROVEMENTS IN RICE PRODUCTION

Since rice is the most important single crop and the basic food crop of Japan, it is not strange that attempts to improve yields per acre have received much attention. The acreage has increased about 25 per cent, the yield per acre 70 per cent and total production 113 per cent during the 65-year period represented by these data. Two factors appear to have been primarily responsible — the use of commercial fertilisers and better varieties. The relative effects of the two cannot be determined by the data at hand; indeed, in the eyes of Japanese investigators they cannot be separated since each is dependent on the other. That is to say, it seems to be the general belief that the better varieties produced in recent years are better only when heavily fertilised and also that the better varieties must be grown if the full benefit of fertilisers is to be expected.

It has recently been estimated by Matsuo that in 1945 no less than 69 per cent of the total rice acreage of Japan was devoted to new varieties and selections produced by the agricultural experiment stations. New varieties produced by hybridisation account for 46 per cent and selections from old varieties the remaining 23 per cent. In some Prefectures practically all the rice acreage grows these new varieties.

As in the United States, improvement by hybridisation is a rather recent development, having been employed to an important degree since 1920 though used to some extent as far back as 1903. Interest in hybridisation was greatly stimulated by the discovery that certain varieties from India are resistant to *pyricularia*, the most important rice disease in Japan. The first resistant variety to be produced — Rikuu 132 — distributed in 1925 in northern Honshu proved so popular that rice growers erected a monument at Akita to commemorate the event.

IMPROVEMENTS IN WHEAT

The increase in the production of wheat is of special interest.

While it was a relatively minor crop in 1878-82, it is now second only to rice or a close third if common and hull-less barley are considered as one crop. Acreage since this early period has increased 119 per cent, yield per acre 140 per cent and total production 425 per cent. Nearly half the increase in production has taken place since 1932 when the Imperial Japanese Government inaugurated a 5-year programme to increase domestic production in order to reduce imports.

As for rice, the increases in yields per acre appear to be due largely to the development of superior varieties and the use of commercial fertilisers. Here also the interrelation between variety and fertiliser has been emphasised by Japanese investigators. This relates not only to the quantity of fertiliser used, but also the particular kind — potassium for example. The response of different varieties to soil acidity has also received considerable attention. These relations are considered of sufficient importance that when it became apparent after the war that the supplies of commercial fertilisers would be very inadequate, varietal recommendations for certain areas were modified to meet the changing situation.

IMPROVEMENT IN TEA PRODUCTION

The increase in the production of tea is of interest since a decrease in acreage of more than one-fourth has been more than offset by the increase in yield per acre of about 180 per cent. As a result of the latter, total production in 1938-42 was almost three times that of the earlier period. Accompanying this has been a marked reduction in labour requirements, especially for picking and curing. The modern method of clipping with shears which is used for a major share of the crop as compared with hand picking is said to have reduced the labour cost of gathering the leaves to about one-tenth of the former figure.

IMPROVEMENT IN SILK PRODUCTION

It would be difficult to cite an example of a contribution of science to agriculture that is more striking than is provided by the improved methods of producing silk in Japan. Certainly there are few agricultural industries that have profited more from research or in which success has depended so much on research.

There have been improvements all along the production line. They include every problem from breeding, propagating, fertilising

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and care of mulberry trees to the use of F_1 hybrid silkworms and translocation of genetic characters by means of X-ray techniques. To tell the complete story would require a large volume. Two contributions appear worthy of note here because of their relation to agricultural research in general and their influence on silk production. They are: (1) the use of F_1 hybrid silkworms and (2) treatment of silkworm eggs to permit hatching at any desired time of the year.

F_1 hybrids between selected varieties of silkworms are now used almost exclusively for the commercial production of silk in Japan. The hybrids are more vigorous, less susceptible to disease, spin larger cocoons, and produce more silk and a better quality of silk than do those of any pure variety. The basic discoveries leading to the use of F_1 hybrids in silk production were reported by K. Toyama of Tokyo Imperial University in 1909 (8) and were put to practical use four or five years later. The sharp upward trend in silk production which began with the 1913 to 1917 period is generally attributed to this contribution.

The use of F_1 hybrids requires controlled mating of the silkworms, a laborious and time consuming process because of the difficulty in distinguishing the sexes. This problem has been largely overcome by transferring sex-linked markers to several of the parent varieties, not however until translocations induced by X-rays were resorted to in order to effect the desired combinations. By means of these markers the sexes can be readily identified in the larval stage. Commercial utilisation of this principle was made in Japan in 1945 for the first time. This contribution of genetic science to a practical problem is analogous to the transfer of sex-linked markers in poultry which has attracted the attention of poultry breeders in the United States in recent years.

The second important achievement is the treatment of silkworm eggs, the development of methods of storage, and artificial hatching of the eggs so that monovoltine varieties of silkworms may be produced at any time during the year. Monovoltine classes are preferred because of the better quality of cocoons they produce. Untreated eggs, like the seeds of certain plants, remain dormant for a considerable time unless exposed to a rather specific combination of environmental conditions. Because the eggs normally hatch only in the spring, the silk farmer has been limited to what silkworms can be produced in a brief period each year. The new methods

permit hatching at any desired time during the year.

Various other developments too numerous to mention here have had important effects not only on production, but also on the quality of silk and reduction in the labour costs of producing it.

PLANT BREEDING METHODS

Plant breeding methods generally used in Japan are similar to those in the United States and Europe. The basic sciences, especially genetics, cytology, plant pathology, and entomology have played important roles in developing fundamental relations on which sound programmes can be based. Individual classes of causal organisms are recognised but either are less important or knowledge concerning them has been developed to a less extent than in the United States. The compatibility of different varieties of the same crop for crossing especially of rice and sweet potatoes, have received much attention. Incidentally, the possibilities of wheat-rye crosses are being re-investigated. Experimental fields are much smaller than in the United States, but more numerous at least in relation to the area of cultivated land. Field plots generally are small, similar to rod row trials in the United States. Replication is the general rule but statistical methods for the interpretation of results are seldom or never used.

Studies of ecological relations as a basis for plant breeding have received much attention as a foundation for crop improvement. It is sometimes referred to as the genetical-ecological approach to plant breeding. By this is meant a determination of the reaction of varieties to specific environmental conditions and in turn the relation of these to adaptation and distribution of specific varieties. These include not only the usual climatic factors such as the length of growing season and precipitation, but also to such specific factors as summer air, and water temperatures, sunshine including the effect of fogs, depth of snow, especially in relation to snow blight, frost damage at various stages of plant development, soil acidity, levels of soil fertility with respect to different mineral elements, specific disease and insect pest, and the relation of soil fertility to diseases of various kinds. Because of the great range in soil fertility and the universal use of fertilisers, Japan affords a unique opportunity for studies of the relation of soil factors including fertility to the adaptation of varieties and the prevalence of various diseases. Japanese literature appears to be rich in contributions of this nature,

many of which would be of great interest, but which unfortunately are not generally available because they are not reported in a language easily read outside of Japan.

THE AGRICULTURAL EXPERIMENT STATIONS

As mentioned earlier, research has had a most important part in the development of better methods of crop production.

The important agricultural research organisations of Japan are the Agricultural Experiment Stations and the Agricultural Departments of the five Imperial Universities. The agricultural experiment station setup is one of the most extensive in the world considered in relation to the area of cultivated land. *A total of 595 Imperial, prefectural and private, main and branch station and experimental farms, and research laboratories dealing with all agricultural problems have been reported.* Many of these do little more than serve as demonstration farms or for the production and distribution of seed and plants of superior varieties to farmers. Nevertheless, there are no less than 225 stations whose primary function is research with field crops (*i.e.*, rice, wheat, barley, etc., but not fruits, mulberries, silk or vegetables).

The organisation of the experiment station system is interesting. It includes both Imperial and Prefectural Experiment Stations each supported by their respective governments. The Imperial stations include the Imperial Agricultural Experiment Station (so-called) which deals with field crops; the Imperial Horticultural Experiment Station; the Imperial Tea Station, the Imperial Sericultural Experiment Station; and the Imperial Zootechnical (livestock) Experiment Station. Attached to each are a number of branch stations and experimental farms located in various parts of the Empire. Paralleling these in most cases are the prefectural experiment stations. That is, each prefecture usually has an agricultural experiment station, a horticultural station, a sericultural station, and a livestock station. There are also a considerable number of special stations or laboratories, both Imperial and Prefectural. Examples of these are the Imperial Veterinary Laboratory, the Aomori Prefectural Apple Experiment Station, the Shizuoka Citrus Experiment Station, the Shizuoka Prefectural Horse-radish Experiment Station, one or more each for Irish potatoes, sweet potatoes, maize, tobacco, cotton, and many others.

In general, the separate Imperial stations are independent of

each other as are also the separate prefectural stations, except that branch stations and experimental farms are dependent upon the main stations for support and general direction.

This organisation suggests, as is indeed the case, that the Japanese policy has been to establish a large number of small stations each with limited responsibilities rather than single large stations each with multiple responsibilities as is generally the case in the United States. This seems to have resulted in considerable unnecessary duplication of facilities so far as research is concerned, but, nevertheless, may be desirable from the viewpoint of disseminating information to farmers by direct contact in a country where travel is not too easy and where other provisions for bringing results of research to the attention of farmers are somewhat limited.

WORLD RECORD IN MILK

JAPAN MADE REMARKABLE PROGRESS IN LIVESTOCK INDUSTRY DURING THE LAST TWO DECADES BEFORE THE WAR. THIS PROGRESS WAS MADE CHIEFLY DUE TO THE GOVERNMENTAL ENCOURAGEMENT OF LIVESTOCK BREEDING AS A COUNTER-MEASURE FOR OVERCOMING THE FARM DEPRESSION IN THE LAST HALF OF THE TWENTIES. For example, the number of cattle (inclusive hogs, horses and goats) slaughtered in 1940 was more three times the figure for 1920. The production of eggs which was 1,134,367 thousand in 1920 reached the record high figure of 3,642,988 thousand in 1937. Milk production showed a more remarkable increase. It increased to 392,854 tons in 1941 from 66,089 tons in 1920, almost a five-fold increase during this period.



CHAPTER XIII

HOW INDIA CAN GROW MORE?

"We throw nothing away, we can't afford to waste night soil. It is worth much money" — A Japanese official in an interview with the author.

* * * *

Thirty crores of people will fertilise 101,113,200 acres of land with nitrogen at 15.38 kg. to an acre while the total area irrigated under cultivation in the whole of India is only 658,240,000. What are we doing to conserve this source of supply?

Thirty-eight years ago the late Desh Bandhu C. R. Das appealed to the congressmen assembled at Gaya to go back to the villages and put new life into them by improving their economy, health and general conditions, but the Congress could not translate that appeal into practice. Ten years later Gandhiji raised the slogan "Back to the village" and he was partially successful in arousing the conscience of the country. The Congress governments during their short regime adopted some relief measures to help villagers but it was left to the war to remind us of the real significance of the villages, namely that they are our food givers (in fact our back-bone) and if we want to exist we must see that the villages remain functioning, that they can produce more and more food, enough to bear the war burdens. Village security is no doubt a great problem in the present emergency but the main problem is of food, more food. As a villager and a student of agriculture I beg to offer the following practicable suggestions to enable our villages to grow more food:—*

Training of at least one hundred thousand agricultural advisers.

* Written in 1948.

India is a land of seven hundred thousand villages. One such agricultural adviser (a peasant with 6 months training in essential agricultural reforms, within reach of poor farmers) should take charge of seven villages. Let us make a beginning with at least ten thousand trained workers from among the village people and the educated unemployed who want to serve the country and serve themselves.

QUALIFICATIONS FOR PERSONNEL

1. *Desirable qualifications of a rural worker should be:*
 - (a) Rural experience and background.
 - (b) Physical strength and accepted codes of behaviour, *i.e.*, not in conflict with the local code.
 - (c) A sympathetic understanding of the local people and their problems.
2. *Training of Personnel:*
 - (a) Training of the future workers should include principles of economics and rural sociology and techniques of agriculture and home economics adapted to the needs of the area they expect to serve.
 - (b) Utilise scholarships if necessary to provide suitable training for boys and girls having a rural background.
 - (c) Workers should be kept informed about new developments in agriculture and extension techniques, and concerning special programmes needing emphasis from time to time.
 - (d) An efficient and justly-operated system of promotion and rewards for outstanding service and ability is a necessary corollary to selecting and training personnel.
3. *Use of leaders to broaden area of service.*
Increased emphasis should be placed upon use of local peasant leaders in rural programmes and informal training should be given to these leaders.
4. Emphasise the value of the informal instructional methods of extension as a means of educating the youth, not only in agriculture and home making but in other vital interests of the rural community.
5. Any extension programme must be considered and deve-

loped with reference to existing national and local cultural patterns.

The aim of all rural reconstruction should be to make village economy self supporting.

Mass Production of Fertilisers

If our agricultural advisers and research scholars are in earnest they must immediately bring out schemes of mass production of fertilisers. The Showa Fertiliser factory near Yokohama produced the cheapest fertilisers in the world, within easy reach of every peasant but until recently they were not allowed to sell their produce in India. The monopolies must go and the State should run such essential industries and supply fertilisers to the farmers at a normal price.

Preserving the Night Soil

Introducing a scientific manure preservation system and carrying on a crusade against burning of animal manure, such as cow dung. We have long been lamenting the waste of human night soil and animal dung so essential for enriching the land. Unless we follow the Japanese system of preservation of night soil we shall not be able to derive valuable manures from this source. Japan is the most modern country in Asia yet she faithfully clings to the old practice of preserving the night soil in the homes, in towns and in the fields in the villages. When I established a home in Tokyo I wrote to the Municipality to send me a sweeper twice daily to clean the toilet. This request shocked the officer-in-charge who wrote back saying that as a special favour he was prepared to send me a sweeper every tenth day although regular collection of night soil from homes was made only once a month. Every home is provided with a disinfectant which is used twice daily to deodorize and the night soil is preserved in a deep pit until the sweeper comes on his round with a clean wooden container (not the open buckets as used in India). The containers are loaded on carts and sometimes on animals. They used to be carried by sweepers too, but the practice has been abandoned. How I wish the sweepers in India could be provided with the same facilities. I asked an official in Tokyo "Why don't you flush the entire night soil out into the sea"? He retorted: "That would be waste. We throw nothing away. It is worth much money." The peasant realises the value of night soil so

much so that he invites passengers on the roads to use his field lavatory for his benefit. Notice boards on the roadside invite passers-by for profit to the owner of the field. Manure is like gold to the peasant.

Every village to have a peasants club (Chaupal) and a small library containing vernacular books on how to improve their economic lot by following improved agricultural methods.

Village school teachers (one from each school) should compulsorily be made to learn a course in agriculture to be able to advise peasants in improved and paying methods.

Every village should, as far as water supply and rainfall permit, have a fuel wood forest of its own and put an end to the practice of burning valuable manure for fuel.

Every village must revive the old system of preserving and maintaining grounds for the village cattle.

A panchayati (community) dairy should be established in every village to provide milk to all children and especially the sick and the poor.

Co-operative dairies for supplying milk to neighbouring towns and cities should be opened in every circle of ten villages.

Modern agricultural hand machinery to be manufactured in villages. I have seen most inexpensive machinery used in Japan for sowing, weeding, cutting and threshing of crops. Some of the machines are worked by foot and cost hardly seven to ten rupees each. Especially the machines for cutting and threshing save a lot of time and are enjoyable to work. I worked them personally when I spent a few months in a village in Japan.

To introduce the system of increasing space for crops by raising bamboo or sarkanda structures which help the growth of plants.

To reduce the wastage of land by shortening the width of village roads which usually take a lot of space.

WANTED MORE CROPS

Both Japan and China are reputed for growing much crop per acre than we in India do. I have seen how intelligent and hard working the peasants of Japan and China are and how they make every inch of land pay. Two crops of rice are commonly grown each year in southern China and during the winter and early spring, grain, cabbage, peas, beans and ginger may occupy the fields as a third or even fourth crop, making the total year's product from the land very large. The amount of thought, labour and fertilisers

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given to securing these is even greater and beyond anything our farmers can dream of.

Fishing is an industry which brings millions of rupees to Japan. 'Japan has been exporting fish all over the world.' I met Japanese fishermen in Mexico, Hollywood, Honolulu, Singapore, Colombo and Manila. They have made it a very paying industry. In China, fish culture is a great village industry. Fish culture, is practised in both deep and shallow basin, the deep permanent ones renting as high as a hundred rupees per acre. The shallow basins which can be drained in the dry season are used for fish only during the rainy period, being later drained and planted to some crop. The permanent basins have often come to be ten or twelve feet deep, increasing with long usage, for they are practically drained by pumping and the foot or two of mud which has accumulated, removed and sold as fertiliser to planters of rice and other crops. India can develop this industry in all those areas where water supply and rainfall are abundant. India's huge water front provides a large field for fish industry run on co-operative lines.

The sea weed industry of Japan offers not only a great solution for food sufficiency but enables Japan to earn quite a few millions from various by-products. We can also introduce this industry in our villages on the coast.

VALUABLE SUGGESTIONS

My friend Chaudhri Mukhtar Singh with whom I made a joint study of Japan's village industries and agriculture in 1937 has made the following valuable suggestions which deserve serious consideration by our Ministry of Agriculture. Chaudhri Sahib is a practical farmer, an industrialist and a keen research student. Supporting my suggestion not to let the night soil be wasted but utilised as manure instead, Chaudhri Mukhtar Singh adds:—

The main item by which China has maintained its soil fertility is human excreta and urine. 11 lbs. of nitrogen is on an average produced by a person in a year. Calculating at that rate 30 crores of people in the Indian Dominion produce $1\frac{1}{2}$ million tons of nitrogen. Is it not enough to supply a big portion of our deficiency in nitrogen? According to the author of a well known book "Use of waste material", 30 crores of people will fertilise 101,113,200 acres of land with nitrogen at 15.38 Kg. to an acre while the total area irrigated under cultivation in the whole of India is

only 658,240,000. What are we doing to consider this source of supply? In all cantonments, railway stations and factories it is simply burnt and in big municipalities we are burying it so deep in barren areas that it is lost for the plant. In villages barring an attempt made by Mahatma Gandhi to evolve an inexpensive latrine we have done nothing. In all big towns near about the sea or rivers, we take pride in throwing this valuable material either in the sea or rivers and thus pollute water and make it injurious both to man and animal. A little composting recently started is simply an eye wash. This valuable source must be conserved and its burning or burying deep or throwing it into sea or river be prohibited by law. We have neither made effective use of our sullage water. In the first place it is taken away through *kacha* drains and a lot of it is lost in seepage and whatever is used it is applied in such a concentrated form that our soil becomes sick. By diluting this with pure water we can spread it over four times the area and can benefit thousands of acres to produce good crops.

It must be admitted that in these days of scarcity we cannot save more from yard manure but certainly we can conserve cattle urine which is far richer in manurial elements than dung. Practice of utilising this valuable article must be introduced amongst the farmers and urine earth be manufactured by millions of tons every year and utilised for manure.

GREEN MANURE

The other but important and clean source of supply of organic nitrogen is green manuring. We discovered this valuable practice and yet this practice is not utilised to the extent it is used in other foreign countries. I consider our salvation lies in green manuring. But the practice is not likely to become common unless and until we remove the difficulties under which the farmer suffers. Water and good investing plough are his main difficulties. Further it should be so fitted in his crop rotation that the cultivator may not lose one crop. We have relied too much upon the distribution of seed only. If we make it a point that in all irrigated areas at least one fifth of the cultivated area is green manured every year we shall be able to double our yields from this area. We should not rely upon any one crop for this purpose. Many new crops will have to be introduced in accordance with our resources, climate and types of soils.

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Legume Rotation: If we change the cropping system in such a way that every field must have a legume crop every year we can enrich our soils considerably. We can, by this method, supplement with available manure and maintain the fertility of our soils for a sufficiently long period.

Horn and Hoof: Meal is another source of nitrogen, and it gives 12 per cent nitrogen and a large quantity of phosphoric acid. If we are still enamoured of artificial nitrogen let us use the indigenous fertiliser produced by nature in millions of tons in the country in the shape of saltpetre. It is true that it contains only 12 per cent nitrogen against 20 per cent in sulphate of ammonia and its price is also high but remember that every pie we spend over the former remains in the country. It also supplies another important plant ingredient. As regards its price we have never tried to manufacture it by modern up-to-date methods. Business for the most part remained in the hands of poor people who have to pay high rate of interest and cannot afford to mechanise the manufacture. If the Government takes it up its price will come down very soon. Bihar is the main source for this article while large quantities are available in the U.P., Madras and the Punjab and other provinces.

Besides nitrogen phosphorus is another element required for crop production. Fortunately, most of our soils are said to contain enough of it and for areas which are deficient in it, bones when properly treated will supply the deficiency.

For potassium there is generally no deficiency and if there be any potassium nitrate will supply the same.

Over and above the supply of manure there is another important aspect which requires attention. It is the time of application, method and form of manure. In Java for cane production the experts have evolved methods in which fertiliser is applied at particular period of plant growth by spoon near the root of individual plants and this method has paid for the labour and has saved manure. In India we have not even cared to use economically highly expensive manure as oil cakes. If we had simply supplied oil cakes in powder form we would have increased its utility very much. Its use would have been further economised by drilling it with seed and so on. Experts should work upon this aspect and advise the farmer to make the best use of his limited resources. Levelling bunding and contouring are some of the operations which maintain soil fertility and help in higher crop production. But these operations

have not been adopted on a systematic and big scale without which their effect cannot be apparent.

Water Supply:— This question ought to be considered from the following points of view: (a) Dry areas where rainfall is enough. (b) Dry areas where rainfall is below 20", which must be implemented by artificial means. (c) Canal irrigated area. (d) Well irrigated area, and (e) Areas where well irrigation is possible but wells are not available. (f) Where rainfall is high and drainage is necessary. (g) Erosion.

(a) Dry farming is the oldest method practised in India in all precarious tracts. The most important province is Bihar. Government itself has made experiments in dry farming. All these details have, however, not been brought out in a simple language and the practice has not been worked up for different types or climates, soils and crops. Little attempt has been made to evolve draught resisting varieties nor attempts have been made to evolve varieties with little vegetative growth. We must concentrate on these factors as soon as possible.

(b) A systematic survey be made of all these areas and places must be specified where tanks or wells may be constructed. Haphazard method of sinking wells or building tanks wherever a cultivator demands is a wasteful practice. There is need for systematic sinking wells, constructing well with arrangement for Osrabandi and whenever necessary to supply labour saving water lifts.

(c) Artificial irrigation is always expensive and standard of cultivation in these parts must be very high. Failure of water even once when required may ruin the cultivator. Canal irrigation in India is not designed for intensive cultivation, and the reports are that cultivators are being forced everywhere to sink wells to supplement the canal supply while the department is busy with spreading the same over the largest area. This mentality of the Department must be stopped immediately. Antiquated 'Canal and Drainage Act' by which no responsibility is attached to the Department and the cultivator is made to suffer the tyranny of the officers must be suitably amended. (d) Well irrigation is much more expensive than canal and this explains the fact that most of the existing wells are not worked at all. There is immediate need to evolve power lifts of small capacity worked by electricity or bullocks to save these areas. If our wells can be worked cheap people will take to intensive farming easily. A few good engineers must be

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employed on the job of evolving lifts for different depths, good, efficient foreign lifts may also be tried. (e) Departmental officers must fix the location for wells, construct them, fit them with lifts and provide them with Osrabandi after laying down the command so that in their working there may arise no dispute or difficulties. Providing subsidies for wells is no remedy for the existing evil. (f) Drainage has entirely been neglected and every year large areas are affected and valuable crops are lost. This question cannot be tackled by any one village or a paragana but the question has to be studied on all India basis so that inter-district or inter-provincial difficulties may be easily overcome.

(g) Erosion in the same connection is an important question. Most of the C. P. areas, if left alone for some time more, are likely to disappear very soon. Good land is daily being washed and taken to the sea. U.S.A. has done very good work in this connection. If we adopt all those methods and stop erosion we shall save huge areas which are disappearing every year. More attention should be paid to this problem than attempting new areas to be brought under cultivation. Our low yield in certain parts is mostly due to erosion.

Climate, pests and diseases:— Incidence of climate is not systematically studied and we have not even rainfall records properly maintained every ten miles in the country. Sunshine, temperatures, etc., are other factors about which we have very vague ideas. More definite information has to be collected and maintained, some sort of insurance against bad years should be introduced. We cannot go on complaining against nature but we must know the incidence of climate in all its aspects and provide for it. Most of the pests and diseases are either the results of climate or the results of micro-deficiencies of elements of soil. We cannot do justice by allotting this problem only to an entomologist or a plant pathologist but the question must be attacked on all fronts. Plant protection service will be helpful but it will do very little without above investigation.

News of climate must be interpreted for different crops and localities and people should know before hand what calamity is likely to visit them on this score. Such an effective service must be introduced at an early date.

Seed and suitable seed:— We have given this item the last place because the department has made a fetish of it and they consider it to be the sovereign remedy for all their ills. The entire department is wasting its energy on this item alone. In the first place

improved varieties barring cane has not been eagerly taken up by the farmers. Besides its effect has always been temporary inasmuch as a high yielding variety must exact more nutrients from the soil and unless they are supplied mere improved seed is of no avail. Without maintaining soil fertility we cannot achieve good results in irrigated areas.

Our botanists ought to have attacked the problem on other fronts, some of which have already been noted above. Other countries, specially Russia, have shown us the way and we must adopt all these methods in our country. Trying imported seeds is not likely to succeed. It may serve better if we send our experts to Russia to learn the technique of seed production suitable for the different areas we have to deal with. We have discussed above the different factors upon which the yield depends. Over and above these factors there are many more lines whose adoption will increase our yield. Below I describe some of them.

Dofasli area.— If we compare the figures we find that most of the area produces only one crop a year. Out of the total area (nett sown) 285,465,000 acres only 40,784,000 are sown twice in the year, *i.e.*, less than 15 per cent. If we further analyse this area sown twice we shall be surprised to find that most of this dofasli area is in dry land in which early fodder is grown and if there is moisture another rabi crop is sown just to take a chance. If we take into consideration 59,022,000 acres of area left as fallow every year we find that we do not cultivate the entire area available for cultivation even for once. If we can produce two crops even in irrigated area which is no less than 65,824,000 acres we can increase our crop production by more than our requirements without bringing any new area under cultivation. (Figures given above are from whole of India including states). We should make it a point to grow two crops in all the irrigated areas and so also in places where rainfall is enough and well distributed. Leaving land for recuperation is no more necessary provided we take an intelligent interest in maintaining soil fertility. In Italy where land remains unworkable for a number of months farmers take more than 6 crops some of them being mixed crops. Some farmers in India take more than 4 crops a year. By a little more attention we can fix up a rotation for growing two crops a year in most of the areas quite easily. Of course we consider green manuring crop as a crop in the above suggestion.

It is regrettable that the farmer has not taken into consideration vegetable crops as ordinary crops and this has narrowed down his choice in cropping, carrots, sweet potato, turnips, etc., which are both food, protective food and valuable feed for milch cattle, must be included in his rotation.

Mixed cropping.— In dry areas mixed cropping must be encouraged. Maize with urad, Bajra with moth, barley and wheat, wheat and gram are some of the combinations which are already sown but they and similar others must become quite universal. When we grow two crops we insure in a way a good yield from our fields inasmuch as in the case of drought, or any other calamity, one crop may grow better than the other.

Mixed crop and catch crops may usefully be employed in irrigated areas also. In all cotton areas we can grow pepper, methi or carrot even before cotton is all picked and these crops do not suffer much by trampling. Barsem in rice fields before harvesting is a very good practice but is not generally adopted. Many combinations may be suggested but as it will depend upon climate, facilities and convenience, I do not try to make an exhaustive list.

Subsistence Farming.— It is unfortunate that inspite of better transport the mentality of the farmer to grow all his requirements himself has not very much changed. This is perhaps one of the main reasons of our low production and keeping to our old diet intact. Some of our holdings are quite unsuitable for growing number of articles which the cultivators need. By insisting upon producing such crops he gets very little himself and also decreases the quantity available for our national larder. If we ask him to co-operate in this respect our yield will go higher and the farmer will get more from his fields. To induce him to give up his present practice may not be easy. But if we make those articles available and cheap in the market nearby even at a loss we may change his mentality to some extent. If we once succeed in this we shall be getting full value of our land and resources and once we have changed his cropping scheme his diet will also easily change.

Current fallow.— This is our important line of attack which seems to have been neglected. Current fallow is due to three main causes. One is that the climate is such that areas meant by the farmer for rabi growing do not get enough moisture for sowing a crop. In such areas early ripening crops may be helpful. Better implements for moisture conservation may be employed. The second

category consists of the area which has been eroded or otherwise spoiled and gone out of cultivation. It is unfortunate that a systematic record of such areas and the causes by which it was effected are not recorded. If we do that we shall be able to visualise our difficulty better and shall be able to prescribe remedies for the same. It cannot be said to be a wise policy to lose areas already cultivated and to remain in search of new areas to be brought under the plough. Thirdly there are areas which the proprietor cannot cultivate and will not allow any cultivator to plough the land lest the latter may acquire permanent rights in his land. Such an attitude is criminal against the nation and must be stopped by confiscation of such land to the State.

From the available figures this area has varied from 34 million to 62 million acres a year during the last ten years. If we can cultivate even half of this area we can produce more than what we require.

Food per acre:— Though we are insisting on more production yet we have not concentrated upon producing maximum food from an acre. If we make a systematic study we shall be able to change our deficit into surplus within a short period. Bhur or sandy areas are generally poor in their fertility. These are mostly unirrigated tracts uneven and least cared for. But they are admirably suited to produce root crops like sweet-potato, carrots, tapioca, turnips, ground-nut, etc. The production of dry weight crop will certainly be much more than any of the cereals grown in them. If the Government asks the people to grow these crops and give them guaranteed prices to begin with, with transport facilities we shall be able to improve the economic condition of these areas and will provide better food to the people. These crops may be dried in the sun and ground with flour so that bread may become more nutritive and palatable. It is regretted that we have not made a complete study of our edible root-crops which grow wild and are eaten by the poor people. A complete study of these edible roots may give us new crop for cultivation. In U.S. America maize has been considerably replaced by sweet potato for making starch and within last few years the latter has become quite an important crop in certain localities. Sugar-cane perhaps gives the highest food value per acre but still this crop is neglected by the Central Government in giving stepmotherly treatment to those who manufacture Gur and do not supply cane to the factories. Cane juice

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NEW DELHI

and gur are the cheapest sweetening agents for poor man's food.

Banana is another crop which gives the highest value for food. Its cultivation should be increased whenever it is possible. Perhaps it may be worthwhile to increase the area under this crop in places most suitable for banana growing. Leafy vegetables is another crop which gives highest food value in crop production.

Though methi, bathwa and some other leaves are mixed with bread and eaten yet their general use has not grown. Practice of taking raw leaf with food is quite common in other countries and its usefulness if once estanlished, will decrease pressure on cereals to some extent.

Water Crops.:— Though we have tanks and ponds and jhils over quite a large area but we see that they are not available for cultivation. This seems to be a wrong description. Most of them are certainly useful for growing water nuts, Kasero. Let all these places be utilised for regular production of these crops. Water nuts are good delicious food and this source need not be neglected.

Implements.:— Agricultural implements are required both for efficiency and for cheapening the cost. Though efficient implements were in great demand yet they were not within the means of cultivator and no attempt was made to popularise them by giving them on hire. Recently due to high wages and prohibitive prices of bullocks labour saving implements have become essential. Before the war cultivator produced crop by good and clean cultivation but in these days the wages are not only high but the work done by labour is very little. Crops are therefore generally neglected by those who depned mostly on hired labour. This one factor explains to a great extent the cause of our low yield per acre during these years. A drive, therefore, both for efficient and labour saving implements is absolutely necessary if we care to avoid the food crisis. All governments should pool all their resources to establish a central factory for this purpose. There all the needs of the farmers should be studied by the experts and implements evolved suitable for different localities. Spasmodic and irregular efforts will not solve the problem. Foreign implements may be imported as samples and their designs may be according to our need. If we provide good cheap water lifts for different depths, a good investing plough, an effective moisture conserving cultivator and a good water culture implement, most of our requirements will be covered.

In Japan they use single bullock plough. If these can be

introduced in India we can make a good saving. In places like Egypt bullocks are used for cultivation. Their implements may be made use of in the country. I regret to say that even good implements used in different parts of the country are not being studied as to how far these could be used in other parts either as they are or with some modification. This work should no more be neglected. I consider a central department and workshop is necessary for this purpose. Provinces may multiply these implements in their jurisdiction after the design is finalised. Provinces have neither the means nor the talents for this purpose.

New Area.—I have placed this item last inasmuch as I think we cannot afford to bring more area under cultivation. We stand in need of pasture land and forest for timber and fuel. Barren areas or culturable waste should be reserved for this purpose. When we find that our yield per acre is capable of being increased to the extent of more than 300 per cent there is no reason as to why we should not concentrate upon producing more. Only areas which are quite good for cultivation and which can be improved without difficulty may be attempted to be brought under the plough. At present our area under cultivation is more than enough for our needs.

In States, of course, there are big areas which are producing very little. There is no harm if they are developed for cultivation.

We have a great deficit in milk without which we cannot produce a healthy nation. It should be given first priority over everything. Even worst alkaline and hard pan areas can be made to grow some tree or another and then under them grasses can easily be grown. In most of the provinces there is a dearth for grazing ground though huge areas are lying waste. There should be no difficulty in raising some types of trees and grasses in this area. If it is done more milk could be produced and less cereals would be needed.

Cultivation of grasses, their varieties and suitability for different areas has altogether been neglected. This is a line which requires immediate attention. In U.S. America a few grasses have been discovered to overcome erosion and supplying good nutritive feed. Our country may have many such grasses whose research will pay its way. It will be a paying proposition for the Government to acquire all the waste areas and after developing them into pastures and forests to sell them back. Suitable conditions may be prescribed so that these areas may always remain forest and pasture

areas. Grasses from other countries may be tried with advantage and the literature on reclamation may be collected for adoption.

Drainage:— This is one of the most neglected items. A large area of good crop if always flooded is lost to us. Natural drainage has not improved but has been intercepted by roads, canals and railways. It is high time when this question is systematically approached. This work cannot be done by the cultivators. Provinces should do this work and where large rivers are involved more than two Governments may have to work conjointly. Government of India should assume power or arbitrate in all such cases. Our rivers which flow and destroy every year huge areas and which keep good land around their banks in an unhealthy condition can be made to serve the cheapest system of transport and at the same time lacs of acres will be redeemed for good cultivation or afforestation. There is an immediate need for this items to be taken up.

The Irrigation Department specially on well established canals has engineers who can be spared and if they are placed on this work we can easily train our rivers in useful channels. There may be possibility of lifting their water and utilising it for irrigation.

WHAT IS REALLY NEEDED IS NOT SCHEMES BUT ACTION. WE HAVE TALKED ENOUGH. NOW WE MUST ACT.

AIRLINES IN TOKYO

Air France—Sanshin Bldg., Yurakucho. Tel 591-1381/4; 741-1606 air port.

Air-India International — Hibiya Mitsui Bldg., Yurakucho, 1-chome. Tel 501-6361/4; 741-1956 air port.

All Nippon Airways—Taisho Seimei Bldg., Yurakucho. Tel 281-0231; 741-0931 air port.

American Air Lines—Imperial Hotel, Uchisaiwaicho. Tel 591-0833.

British Overseas Airways Corp.—Sanshin Bldg., Yurakucho. Tel 591-1261, 9221/5; 741-1537 air port.

Canadian Pacific Airlines—Nikkatsu Bldg., Yurakucho. Tel 281-7426; 741-1376 air port.

Cathay Pacific Airways — Agents BOAC. Tel 591-1261/7.

Civil Air Transport—Fukoku Bldg., Uchisaiwaicho. Tel 591-5211; 741-1679 air port.

Japan Air Lines—Daini Tekko Bldg. Tel 231-2411, 3211; 741-1155 air

port.

K. L. M., Royal Dutch Airlines — Nitto Bldg., Yaesu-guchi. Tel 281-2751; 741-1526 air port.

Lufthansa — Imperial Hotel ticket counter. Tel 591-1624.

Northwest Orient Airlines — Nikkatsu Bldg., Yurakucho. Tel 271-4581; 741-0637/8 air port.

Pan American World Airways — Mitsubishi Shoji Bldg., Marunouchi. Tel 211-2441; 741-1090 air port.

Scandinavian Airlines System — No. 2, 1-chome, Ohtemachi. Tel 231-5161/9, 5160; 741-1705, 1725 air port; Imperial Hotel Office 591-0857.

Swissair—Room 316, Nikkatsu Bldg., Yurakucho. Tel 271-5966/9; 741-1513, airport.

Trans World Airlines — Hamaichi Bldg., Ginza. Tel 561-7552/3.

United Air Lines — Imperial Hotel. Tel 591-7025.

CHAPTER XIV

FINE ARTS

Japan has often been called a country of fine art. By and large, one may say that it justly deserves the reputation when one looks back on its brilliant history of achievement in this field.

The oldest surviving items of ancient Japanese sculpture are earthen images which were produced in the Stone Age and crude stone figures of a somewhat later period.

At some time in the fourth century, a sort of clay image, called *Haniwa* — mortuary figures excavated from ancient mausoleums — began to be made. They show slightly advanced artistic workmanship over those made in previous ages.

With the introduction of Buddhism in 538, Japanese art showed a remarkable development, especially during the period 552–646 — known in the history of Japanese art as the Asuka Period — under generous Imperial patronage.

Many Buddhist temples were then built, and the famous Horyuji Temple with its pagoda, located near Nara, is one example. It is believed to be the oldest wooden structure in existence in the world.

Sculpture which flourished in that period was idealistic in expression, with emphasis on solemnity and sublimity, as fine art was mainly patronized by Buddhists.

The Asuka Period was followed by the Hakuho Period (646–742) during which, under the influence of the Chinese (Tang) and Indian cultures, the flatness of form and stiffness of expression in sculptures of the preceding period were replaced by grace and vigor with a three-dimensional effect.

The following Tempyo Period (724–794) is regarded as the golden age of Buddhism and Buddhist sculpture in Japan. The idealistic expression of the preceding periods was further rounded out by realism newly introduced from abroad.

A number of sculptures, with their grandeur and large-scale

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design, and yet full of serenity, are worthy of the name of masterpieces of this golden age. Some of them can be seen in the vicinity of Nara today.

Then came the Jogan Period (794-894) or the first 100 years of the Hei-An- Period. Influenced by the Mikkyo Buddhist teachings with their deeply mystical elements, sculptures of this period are massive in form and mystic in expression. The realism of the previous period and its idealistic expressions returned.

During the Hei-An Period (894-1192), when the Fujiwara family enjoyed prosperity, sculpture was featured by elegance and beauty, often at the expense of strength. Contacts with China having been interrupted, the time had come to create a new type of Japanese art in which all foreign impacts were to be assimilated.

Delicacy and exquisite form were the distinctive characteristics of the new creation. This trend is also noticeable in the unique architecture of this period, in which a harmony of tone characterized mansions and temples. The most beautiful example is H-o-do (Phoenix Hall) of the Byodoin monastery near Kyoto.

During this period, painting played an important role almost for the first time. *Yamato-E* (paintings chiefly based on color mass and outline) as well as the art of *E-Makimono* or illustrated scrolls developed.

Sculpture became extremely realistic in style and vigorous in expression during the Kamakura Period (1192-1338), reflecting the austere regime of the warrior class and echoing the teachings of the newly founded sects of popularized Buddhism.

Besides the illustrated scrolls which gained in popularity, portrait painting also came into vogue. Popular also was architecture that kept its original mode of purity and simplicity and the monastic buildings of the Zen sect of Buddhism, which placed emphasis on meditation and self discipline. Some of the characteristic features of the architecture of this period can even be found in present-day Japanese homes.

Then came the Muromachi Period (1338-1573). Particularly noteworthy in the development of Japanese art during this period is the creation of *Sumi-E*, black ink, brush painting. This school of painting originated with Buddhists of the Zen sect who were familiar with the art of China's Ming Dynasty.

In the transitional Momoyama Period (1573-1615), artistic emphasis was sought in bright colors and grandiose designs. Gorgeous

folding screens were introduced, and wood-carvings for the decoration of castles and temples were popular. *Noh* masks of supreme quality also began to appear during this period.

During the succeeding Edo or Tokugawa Period (1615-1867), painting continued to enjoy popularity, whereas sculpture waned. A school of *genre* painting called *Ukiyo-E* won immense popularity among the masses. It is a well-known fact that *Ukiyo-E* has had telling influence on the work of some celebrated European painters of the later nineteenth century.

While decorative and realistic schools of painting flourished, progress was also made in handicraft art during this period.

The Katsura Detached Palace of Kyoto, a creation of the early Edo Period, has a place of its own in any historical review of Japanese fine art. This palace is famous, among other things, for the superb balance of its architectural beauty, simple design, and simplicity of its atmosphere. The garden is famous for its masterly layout, and is considered one of the finest examples of Japanese landscape gardens.

Then came the stage where Western influence began to make its presence felt following the abandonment in the 1860's of the feudal policy of seclusion.

In postwar Japan, the "avant-garde" movement is particularly noteworthy.

Numerous art exhibitions are held privately or under the auspices of public organizations all the year round in Japan's main cities.

There has also been much activity in international art exchange. Japanese paintings and sculptures, as well as other objects d'art have been exhibited abroad.

Examples of Japanese architecture and gardens have also been shown abroad, notably in Sweden, Brazil, and the United States.

On the other hand, international art exhibitions are often held in Japan.

Music

Nowadays two types of music, traditional Japanese and Western, are enjoyed equally by the Japanese people.

In the traditional field, *Gagaku* (court music and dance) is preserved at the Imperial Court as well as at some Shinto shrines. Its prototype was introduced into Japan late in the seventh century from the China of the T'ang Dynasty. *Gagaku* is performed for

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the public from time to time. It originated in South India.

In addition to *Gagaku*, there are various forms of *samisen* (a three-stringed instrument) music, most of which accompany *Kabuki* plays, *Bunraku* puppet shows, and classical stage dancing. After centuries of evolution, *samisen* music is very much alive among the people to-day.

When Japan emerged as a modern state in the late 1860's, the westernization of the nation was carried out by adopting things Occidental, including music. So, Western music has since then been taught at schools from the elementary grade, as well as at professional music schools such as the Tokyo Academy of Music which was founded late in the last century and is now a faculty of the University of Arts, Tokyo.

Western music of all kinds has been popularized, including composition, vocal and instrumental music, opera and ballet.

There are large symphony orchestras in Tokyo, Osaka and elsewhere, and their repertoire includes everything from Bach to Shostakovitch.

Recitals, concerts, and performances of operas and ballets are held frequently, besides music contests which are sponsored regularly on a nationwide scale several times a year.

It is considered an epochal event in Japan's musical history that an Italian operatic troupe of 27 persons led by Vittorio Gui visited Japan during 1957, followed shortly afterward by the visit of a Russian ballet group from the world famous Bolshoi Opera. In 1958, the New York City Ballet troupe made a successful tour of Japan.

Meanwhile, Masashi Ueda, a Japanese conductor of international fame, was invited to Argentina in 1957, while Takashi Asahina, conductor, visited Germany, also in 1957. Close upon the heels of such an international exchange of talent, the Shochiku Girls' Revue Troupe made a tour of Southeast Asian countries while the Nichigeki Dancing Team visited Australia early in 1958. And, a group of classical Japanese stage dancers of the Hanayagi group went to Europe in 1958, principally in order to present Japanese *Kabuki* style dancing at the Brussels International Fair.

Theater

Japan is second to no country in theater activities, both classical and modern.

She has three major forms of classical drama: *Noh*, Puppet Show (*Bunraku*) and *Kabuki*.

Noh dramas and dances date back to the late 13th century when various forms of ritual and religious dances of the preceding eras were integrated and developed, reaching the present form early in the 15th century.

They were originally performed exclusively for the higher classes, but today they are widely enjoyed by the public. They are admired for their profound dignity and symbolism.

Mention should particularly be made of the fact that *Noh* was presented at the International Drama Festival held in Venice in 1954, and then in Paris in 1957. This classical form of drama and dance is winning an increasing number of admirers among foreigners.

The *Bunraku* Puppet Show first made its appearance in the 16th century and was perfected until it reached its present form in the 18th century. Nowadays it is played regularly at the Bunraku-za Theater in Osaka and occasionally in Tokyo. Deep human emotions and feelings are expressed by the life-sized dolls through the ingenious manipulation of the puppeteers, to the accompaniment of *samisen* music. It is a highly-developed artistic *genre* of its own.

Kabuki plays in their present form came into being late in the 17th century, by assimilating the finer points of the *Noh* drama and dance, *Bunraku* puppet shows and other theatrical arts of the preceding eras. *Kabuki* in its prototype was played by a troupe of young women, and later by young boys during the first half of the 17th century, but when firmly established as a stage art, it was performed only by men. This tradition has been preserved in the orthodox first-class *Kabuki* troupes to this day, although various innovations have been introduced.

Toward the end of the last century, a group called *Shimpa* made its appearance in Japan's theatrical world. This group stands half-way between *Kabuki* and the modern theater. Originally a *Shimpa* troupe was made up purely of male actors, as in the case of *Kabuki*, but later actresses began to take part.

In addition, there are a number of troupes belonging to the modern school of drama. Their activities began some 30 years ago, but it is only in relatively recent times that they have come to win popular support, especially among the younger generation. Their repertoire is wide, covering not only the classics by such great writers as Shakespear, Moliere, chekhov and Ibsen but also the works of

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modern playwrights, Japanese and foreign.

Motion Pictures

The first motion picture was made in Japan about half a century ago. Since then, both Japanese and foreign pictures have become so popular that more than 6,000 movie houses are at present open for business.

Japanese studios produced 443 features in 1957, as against 514 in 1956. Color and wide screen movies are fast becoming the order of the day.

Some Japanese productions are being widely acclaimed abroad, especially from the point of view of their excellent technique. "Rashomon" and "Gate of Hell", for example, respectively won the Grand Prix at the International Film Festival held at Venice in 1951 and at Cannes in 1954.

Japan was in the international limelight during 1957 following the release of a number of successful American pictures depicting various aspects of Japanese life as their main theme. Meanwhile, "Madam Butterfly" was produced under the joint auspices of an Italian and a Japanese motion picture company, while another dramatic movie was produced as a joint Franco-Japanese venture.

Japan exported 1,694 films, including 1,158 feature productions during 1956.

The number of foreign films released in Japan during 1956 amounted to 193, including 123 American, 27 French, 20 British, and nine Italian pictures.

Japanese movie-goers totalled 994 million in 1956.



CHAPTER XV

SLAVES BECOME CITIZENS

Slaves have become citizens in rural Japan. Tenant farmers have been released from semi-feudalistic bondage by land reform measures such as lowering of farm rents payable in money, lowered taxes and the transfer of land ownership to cultivators.

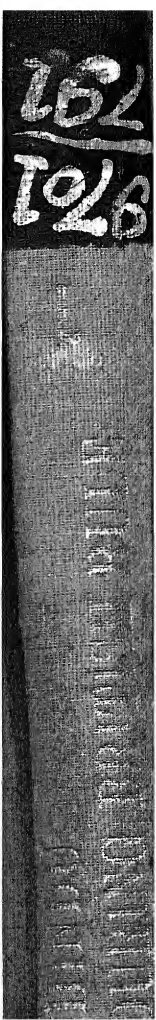
Most big landowners have lost their pre-eminent positions and have turned to commerce and industry.

I am a born optimist and I believe everything is for good (but we haven't got vision broad enough to see it). The last war and the accompanying troubles will lead Japan and other countries to a better situation. Japan is already in the throes of a mighty though silent revolution. This is specially true of the land reform programme.

To see the changes of centuries kaleidoscoped into a few years is an amazing experience... the cycle unchanged but shortened and — almost overnight — the age — old struggle for freedom partially achieved. Such a change from a feudalistic to a modern era is going on in Japan to-day nowhere more markedly than in the various phases of land reform, and in the voluntary agricultural co-operatives.

Three years ago Mr. S. Otsuka, Seya Village, Honshu, Japan, farmed the land his family had farmed for ten generations — land which belonged to a landlord... land which he could only have dreamed might be his own some day. In 1947 he became the first farmer in all Japan to buy land under the new Land Reform Laws. To-day Mr. Otsuka (like thousands upon thousands of former tenant farmers in Japan) is well on the road towards owning the small segment of land his family and farmed for so long.

All over Japan thousands and thousands of tenant farmers toiled for an entire year to eke out from the soil and from their labours only enough of sustenance, only enough of shelter and of



clothes to let them labour for another year..

During 1947 Mr. Otsuka, in accordance with Land Reform Laws carried out under the supervision of the Eighth Army Military Government teams and the Japanese themselves, made arrangements to buy the land his family had tilled for ten generations. So too did thousands of Japanese tenant farmers. It was the beginning of a new era — democracy made workable for men who had lived in a feudal age. As a result of the law thousands of little men, all over Japan, have discovered the dignity of owning land in the country to which they belong. They now have an opportunity to live instead of existing.

Slaves Become Citizens

The revolution on the land has resulted in slaves becoming free citizens. The traditional land tenure system and feudal landlordism had converted millions of people — the tillers of the land into slaves. Now they have become masters of the land they till. They have gained equal status with the highest in the village. Infact the whole village society has become a classless society. A great psychological revolution has taken place along with the revolution on the land. Like tillers of all other lands the Japanese tillers had always longed to have a piece of land which they could call their own. Now their hopes are fulfilled. One farmer told me "my ancestors will be happy that their aspirations are fulfilled".

90 Per Cent Land For Tillers

As a result of the land reform 90% of the land has passed to the tillers of the soil. The fact of land reform on the pattern of ownership of agricultural land is best illustrated by the percentages of land under tennancy and under owner operation at the beginning and the end of the 18 months period from April, 1947 to December, 1948. In April, 1947, landlords owned 46% of the agricultural land in a group of 13 villages (subject of a special research survey), in December, 1948, only 7% landlords existed, 93% were owner operators. Similarly in April, 1947, only 50 % of the land was cultivated by the men who owned it; by December, 1948, tenant purchases of land formerly owned by landlords it increased this percentage to 88.

New Leaders Are Born

The agrarian revolution has resulted in the birth of new leaders. Before 1948 only landlords could dream of becoming mayors of village assemblies. One village clerk with not an inch of land or a former tenant has better chances of becoming a mayor than an ex-big landlord. I know of a village where a clerk has been elected mayor. In 10 years it is expected that at least one third to one half of all local leaders would be coming from the tiller class — the new owner — operator farmers. Already the farmers wield the largest power in their hands and the domination of landlords is becoming a thing of the past, more than two third of the village officials of today are holding positions for the first time. No wonder they are in love with democracy.

Village Govern Themselves

Each village is an independent municipality run by the villagers themselves. The Government is accommodated in a village hall where meetings of village assembly are held and records are kept. Officers elected by the people include the Headman (mayor) and assemblymen. Japan has 46 provinces, 234 cities and 613 counties (Tehsils or Subdivisions) which contain 1850 towns and 8386 villages. In rural area, most public activities are administered on the village level — taxation, education, relief, police and crop deliveries are the main subjects. To obtain food for city dwellers, the Government collects food through village Governments at fixed prices. These crop delivery quotas, which amount to about one lahf of the total crop are faithfully and willingly met with by villagers. Some farmers surpass their quotas and are rewarded with Government certificates.

Land Reclamation Everywhere

Japan is determined to become self-supporting in food, hence the Government has launched a nation-wide drive to reclaim all barren and swamp lands but the population is increasing at such a pace that a miracle can solve the problem of finding land for increasing millions. Fortunately production is increasing.



CHAPTER XVI

TOURISTS' PARADISE

Japan, like Kashmir, is Nature's own garden. The whole of Japan is a bigger Kashmir with the difference that it is a chain of beautiful islands. Japan, with her charming scenery, numerous spas and health resorts, her exquisite arts and crafts, her courteous manners and ancient customs, is justly famous as an ideal all-time holiday-paradise. Next to the United States of America I am so fond of Japan that I would vote for Japan being the headquarters of a World Government, if ever it comes into existence. Every country has beauty, but nothing surpasses the beauty of the inland sea of Japan. The Irish Sea near Cobh may claim a tie. Japan is Nature's favourite child both in gifts and tragedies like earthquakes and typhoons. The quakes and typhoons are natural tests of Japanese fortitude, patience and fellow feeling. No other country faces so many and so disastrous tragedies as Japan but every tragedy leaves Japan stronger than ever. What a strange gift of Nature that makes the Japanese a most mysterious nation.

The land of Japan is small. However, the richly-varied landscape, the colourful scenery in all four seasons, the Oriental exoticism unknown in countries of the West, the classics and modern arts which enhance her value all the more and the warm hospitality of the Japanese people — all of these go towards making Japan a land of tourism.

According to a survey by the Ministry of Transportation, the number of foreign visitors in 1956 totalled 113,500, which is nearly triple the figure of 43,000 in 1936, the highest record in pre-war days.

Japan has a highly efficient transportation network combining the most modern means of transport by land, sea and air.

Japanese railways are fully up to the highest international standards in their punctuality, speed and carrying capacity.

What is the basis of Japan's capacity to attract the people

from other lands despite the drawbacks, which include overcrowding, overpricing, and a shortage of many facilities which go to make up daily living in Western lands?

There are, of course, the oftquoted reasons: a hospitable land inhabited by a friendly people; a benign climate; variations of scene; availability of service, in the home and outside; comfortable (if for the most part modest) living standards within the reach of most; and in general a sense of security.

TOURIST ATTRACTIONS

Japan is famous for its beautiful landscapes, temperate climate and rich historical remains.

Beside, it has developed, under the great influence of its natural environment and historical conditions, a unique culture of its own unparalleled with those of the other countries. At the introduction of foreign cultures originated in Korea, India, China and Western Europe at various stages, it has amalgamated them with its own, not having lost its inherent characteristics which are even today quite interesting and appealing to foreigners.

It also maintains peculiar traditions, manners and customs which still underlie the social and cultural life of the Japanese.

On the other hand, Japan can offer foreigners a lot of conveniences and amenities in relation to the means of transportation, service and facilities at hotels, restaurants, shopping stores, amusement facilities, etc., which will make them feel quite at home during their stay in Japan.

Thus, visitors will have every opportunity to see the charms that are traditionally Japanese and enjoy modern facilities and accommodations for travelling.

I. *NATURAL SCENERY*

The biggest characteristics of Japanese scenery are the rich variety and elegant beauty.

With mountains, not extremely high but beautiful and easy of access, are combined rapids, valleys, waterfalls, lakes, forests, etc., thus giving every possible variety to the scenery. The unparalleled features the scenery offers with the seasonal changes are beyond description.

Japan abounds in mountains especially volcanic ones, most of which turn into a paradise for mountain-climbers in summer and

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for skiers in winters. Mt. Fuji (3,776 m.) and the Japan Alps are the most famous.

The rivers, though not very long, flowing down through mountains, offer wonderful scenic delights.

Most of the lakes are surrounded by mountains or situated close to the sea. In the volcanic regions are often found mountain lakes.

Being a volcanic country, Japan is proud of its abundance in hot-spring. There are over 1,000 spas throughout the country, attracting a great number of tourists from home and abroad. The principal spas are located in scenic mountain, lake or seaside areas and near the big cities.

The coast line is curved and indented with numerous promontories, cliffs, bays, beaches and small islands of various sizes and shapes, thus presenting wonderful caverns, rock formations, etc.

SIX HOURS IN PARADISE

A six hours train ride from Tokyo to Osaka on the Tsubame or anyother express train is like driving through paradise.

A Tokyo-Osaka train journey of 344 miles offers the train traveler varied attractions. As a glance at a map of Japan shows, the track lies in most parts not far from the sea and passes through the principal cities, rivers and fields. Furthermore, the climate in the region along the route is most agreeable throughout the year, and in each season the scenery of mountain and field changes.

In spring cherry blossoms are seen everywhere and in autumn the mountains and hills are ablaze with crimson foliage. Especially noteworthy is Mt. Fuji, which can be admired at the passenger's whim while the train is speeding between Numazu and Sizuoka.

TOKYO Tokyo, pop. 8,037,100; area 796.5 sq. mi., capital of Japan since 1868, is located in the mid-eastern part of the mainland, facing the Bay of Tokyo which opens out on the Pacific Ocean.

The metropolis, still retains much of its old-world charm. There remain traditional ways and habits of yesterday Japan interspersed by many a colorful festivity. It also is a great amusement center with many movie-houses and theaters including those for performances of the Kabuki and the Noh. Sports facilities are no less numerous.

TOKYO — YOKOHAMA The section between Tokyo Station and Shimbashi represents the center of Tokyo's political, com-

mercial and social activities and is filled with numerous modern buildings, of which the Old and New Marunouchi Buildings, the Tokyo Metropolitan Government Office, the Imperial and Daiichi Hotels, the National Diet Building, newspaper offices, department-stores on the Ginza, leading theaters and movie-houses are most conspicuous. Through rows of main streets vigilant eyes will catch a glimpse of the Imperial Palace. On the left-hand side between Shimbashi and Shinagawa is Hama Park. The Hommonji Temple, situated on a pine-clad hill near Omori, is the place where Priest Nichiren, founder of the Nichiren sect of Buddhism, breathed his last in 1282. To the west a very distant view of Mt. Fuji can be had on a fine day. At Tsurumi, Sojiji, the head temple of the Soto (Zen) sect of Buddhism, is seen located on a hillside.

YOKOHAMA Yokohama, pop. 1,143,700, is the gateway to Japan for ocean liners coming from all parts of the world. First opened to foreign trade in 1859, Yokohama grew rapidly both in size and importance. Equipped with good harbor facilities, it now is the foremost trade port in Japan and one of the most thriving port towns in the Far East.

YOKOHAMA — OFUNA Rural scenery can be fully enjoyed, rice-fields, farm-houses and pine-clad mountains coming in sight in a delightful fashion. A most interesting sight to see near Hodogaya is a group of old straw-thatched farm-houses, whose roofs are mostly grown with herbs which blossom in different seasons. The 18-hole, 66,744-yd. golf course, located 2 miles from Hodogaya Station, is noted as one of the best golf courses in Japan. Near Totsuka, on the left side, is a race-course and, on the right side, there stretches along the railroad a long avenue of cherry-trees, which line the small river Kashio. Near the station is the Ofuna motion picture studio of the Shochiku Company, one of the largest in Japan. The huge stone image of Kannon Goddess standing atop a hill near Ofuna Station is not to be confused with the world-famous bronze image of Great Buddha at Kamakura.

MIYANOSHITA is the most thriving spa in the Hakone district and is the center of its communication. With Miyanoshita as the headquarters, delightful motor drives can be enjoyed along good roads, radiating in all directions, the principal objectives being the Fuji Five Lakes at the northern foot of Mt. Fuji, Lake Ashi, popularly known as Lake Hakone, Nagao Pass, etc.

ATAMI SPA Atami is one of the most thriving and popular

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hotspring resorts in Japan, greatly favored for its superb shoreline scenery and genial climate. The motor road running along the beach, which is cut on the cliffs hundreds of feet above the sea, affords a delightful drive, with charming coastal scenery. Atami is connected with Hakone by a motor road which runs by way of scenic Ten-Province Pass.

LAKE BIWA

At several points between Maibara and Otsu is seen Lake Biwa, about 146 miles in circumference and 261 square miles in area, the largest fresh-water lake in Japan. Communication on the lake is maintained by streamers, and visitors can either make a round of the lake, or a trip to the so-called "Eight Views." These steamers all start from Hama-Otsu, part of Otsu City.

KYOTO pop. 1,204,100, is a city rich in historic association and legendary lore, a repository for the finest relics of the civilization of old Japan. Once the capital of the country from 794 to 1868, Kyoto today has many imposing shrines, temples and palaces with elaborately designed gardens. It is also a city of festivals. Colorful fetes fill its calendar from the New Year to the year-end.

The major tourist attractions in Kyoto include Heian Shrine, Higashi and Nishi Honganji Temples, Ginkakuji (Silver Pavilion), Kinkakuji (Gold Pavilion), Sanjusangendo Hall, Old Imperial Palace, Nijo Castle, Kiyomizu Temple and so forth.

Kyoto is also the center of the fine art industries, its principal products being silk fabrics, embroideries, dyed goods, lacquer ware, porcelain, earthenware, dolls, etc.

NAGOYA Nagoya, pop. 1,336,800, situated at the head of Ise Bay, is the largest city in central Japan. The city boasts 75 per cent of Japan's total output of chinaware and 85 per cent of Japan's woolen goods. It also thrives in machinery and rolling-stock industries.

The latest addition to the city's long list of tourist attractions is the 180-meter high TV Tower, the largest and highest of its kind in the Orient. It stands at Sakaemachi, the city's shopping center.

NUMAZU—FUJI RIVER Mt. Fuji, the world-famed symbol of Japan, is open to the view, on the right side, between Numazu and Shizuoka. As the train rushes on, the views of this sacred mountain continually change; on a westbound journey, she gradually unfolds her peerless figure from behind a mountain range and

exposes herself in the most picturesque setting amid the booming sound of the wheels over the Fuji River.

MT. FUJI Mt. Fuji, alt. 12,397 ft., is the highest and most beautiful conical volcano in Japan. It has not been active for more than two hundred years, but apparently there was a time when the smoke rising from its crater was a familiar feature of the landscape. There are eighteen different eruptions on record, the worst having occurred in 800,864 and 1707. On the occasion of the 1707 outbreak, Edo, the present Tokyo, 75 miles distant, is said to have been covered with six inches of ashes. Now only a few faint fumes of steam rising at one spot on the summit remain as a reminder of the mountain's former activity.

KYOTO — OSAKA As soon as the train pulls out of Kyoto Station, the five-storied pagoda of the Toji Temple, the highest of its kind in Japan, is seen above roofs to the south. In the suburbs of Kyoto there are many spots of tourist attraction easily accessible from Kyoto Station.

NARA Nara, the first permanent capital of Japan between 710 and 784, still retains many ancient shrines and temples in its city and suburban areas, including the Kasuga Shrine, the Todaiji Temple, noted for the Great Buddha, and the Horyuji Temple, the world's oldest wooden structure.

OSAKA Osaka, the commercial and industrial center in western Japan, is the second largest city in the country with a population of 2,547,300. Situated at the mouth of the Yodo River emptying into the Bay of Osaka, it has a fine network of canals interlacing its busy streets.

Since its grand day in 1584 when Toyotomi Hideyoshi, the military ruler, had his residential castle built here, Osaka continued to develop its activities as a most important center of domestic and foreign commerce in Japan.

KOBE About 20 miles west of Osaka is Kobe, the second largest port in Japan, which forms the gateway to western Japan with its good harbor facilities for both ocean-going and coastal boats. The city is back-grounded by scenic Rokko Mountains whose summits command a fine view of the Inland Sea.

The Indian community in Osaka and Kobe and the Indian consulate in Kobe are very hospitable.

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LAND OF SPAS

Japan, inspite of its size, has more spas than any other country in the world — 750, as against Russia's 500, Italy's 300, France's 250, and Germany's 220.

Japanese spas are mostly hot-springs of high temperature. Spas elsewhere are mostly mineral springs of a much low temperature. Japan boasts more than 10 hot-springs of over 100 degrees Centigrade, one of them as high as 120. Europe has none anywhere near as hot.

Japan combines all the kinds of hot-spring waters that are found in Europe and America. Besides, it abounds in acid springs as well as alkali springs. Both are rare in Europe.

When it comes to radioactive hot-springs, Japan's Masutomi Hot-springs (13,000) almost equals the World's No. 1 spa at Oberschlema, Germany. Misasa, near Okayama, is also radioactive.

Some Japanese hot-springs, notably Noboribetsu, Beppu and Naruko, each combine several kinds of hot-spring water.

Because of the country's geographical conditions, Japanese hot-springs are mostly situated in scenic mountains or by the sea, thus combining to make of them ideal centres of attraction for tourists.

THE RAILWAYS OF JAPAN

It is a far cry from the days 80 years ago when the first train service was opened between Tokyo and Yokohama. In those days there were only six trains a day. The Japan National Railways had only 15 miles of track, operated only ten locomotives, and ran only 58 passenger coaches and 75 freight cars.

Today the Japan National Railways have more than 12,000 miles of track, operate 5,400 steam locomotives, 3,300 electric locomotives, and more than 1,000 diesel cars, and run 11,000 passenger coaches and 110,000 freight cars. They carry 11 million passengers and 500,000 tons of freight daily.

I have enjoyed the hospitality of National Railways in more

than a dozen countries and I can never forget the Swiss, the Swedish and German Railways but in hospitality and punctuality Japan's National Railways have a rare record, also they enjoy a record in safety. Once I asked a railway conductor if he could get me fresh vegetable because the dining car had no vegetables. He wired to the station master at the next station and the obliging station master brought fresh eggplants from his own garden. The railway conductors are so obliging that they even carry passengers' baggage when there is scarcity of red-cap porters. The sleeping-car boy shines shoes, brushes coats and is helpful in many other ways. The Railways supply soap, towels, slippers and a dressing gown for the night journey.

JAPAN'S RAILWAYS date back to a day in June 1872 when the first steam locomotive puffed out of Shinagawa Station in south Tokyo on the newly laid track running between Tokyo and Yokohama, 18 miles away. Building of more local and regional railroads followed, and in July 1889 the 365-mile Tokaido (Eastern Seaboard) Line, still the busiest in Japan, was completed between Tokyo and the Osaka-Kobe area.

Today the governmentowned Japan National Railways has 12,488 miles of track over which it operates more than 20,000 train runs daily covering 620,000 miles. The JNR is a \$6,000 million enterprise which carries in a single year 4,100 million passengers and 150 million tons of freight. Probably the most heavily used railway section is the stretch between Shinagawa and Tokyo Central Station which handles 423 train runs every day. And JNR trains are on time — their record for punctuality is the best in the world.

In addition to the JNR, privately owned railways play an important part in hauling Japan's passenger traffic. Some 158 companies operate 3,612 miles of rail lines and 1,002 miles of streetcar tracks. Last year these companies carried 6,200 million railway passengers, besides a further 8,300 million on the buses they operate.

An important goal in modernizing the nation's railways was reached in November 1957, when the electrification of the entire Tokaido Line was completed. So far 1,258 miles, about one-tenth of all JNR lines, have been electrified. Under a new long range modernization and expansion program launched late last year, the JNR will electrify an additional 2,050 miles of track. The steep grades and numerous tunnels on Japan's railways, and the need for greater economy and efficiency in operation and maintenance,

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make electrification a major goal in the modernization program.

A notable trend in modern track laying and maintenance has been the use of longer rails, up to nine-tenths of a mile long. These rails, made by welding short sections at the track site, make for smoother rides and easier maintenance. At present, the JNR has about 50 miles of long rail tracks, mostly in tunnels. Another improvement is the use of concrete ties in the railway beds instead of wooden ones. Concrete ties are stronger, steadier, and impervious to moisture, rot, fire, and insects. The JNR has already laid more than 400,000 concrete ties reinforced with piano wire, after first trying out 2,500 of them with excellent results in the Tokyo area.

An indispensable part of Japan's railway system is her rolling stock manufacturing industry. When the Japanese railways were born more than 80 years ago, they were entirely dependent on British technology and oversea sources of rolling stock. The rolling stock industry in Japan today supplies the entire domestic market and is also an important contributor to the export trade. Outstanding achievements of the railway car works are electric locomotives such as the 2,500-kilowatt EH-10 and the ED-70, the world's first AC, single-phase electric locomotive which operates on commercial 60-cycle current.

While main lines will be electrified under the JNR modernization program, diesel locomotives will begin to take over on the non-electrified lines. Of JNR's approximately 5,400 locomotives, 590 are electric, 25 diesel and the remainder steam. Some stream locomotives will be rebuilt and improved, but few new ones will be ordered. Japan has begun work with diesel locomotives only in the past few years, but progress has been rapid. Production and procurement of electric locomotives and cars are proceeding steadily, and engineering development work on new types is being pushed.

An eight-car electric passenger express designed by the Railroad Technical Research Center for the Odakyu Electric Railway Company set a new world record for narrow gauge track of 90.6 miles an hour during a trial speed run in September last year. This train is now in regular service on the Odakyu Line between Tokyo and Odawara.

Another fast new train is the JNR's Model 890 which has hit a top speed of 80.7 miles an hour. This fall it was placed on the Tokyo-Osaka run as the Executive Super Express.

CHAPTER XVII

WEAPONS OF PROSPERITY

Japan's rice production per acre is, without doubt, the highest in the world. The per-unit crop of rice in many of the rice growing countries of Southeast Asia is generally one-third to one-fourth of that of Japan.

Japan's agriculture has achieved a wonderful progress within the past ten years. While such a progress is, as a matter of course, attributable basically to the profound protection given by the food control system, it can be said that advanced improvements in rice cultivation technics and the popularization of the mechanization centering around power tillers are to be taken as its core above all.

The hard labor that was formerly represented by the saying that farmers left their homes without waiting for dawn and came back gazing at the stars has now been replaced by the music of engines and enjoyable nights with television.

The following is a rough statement of the present situation of the Japanese agriculture and about power tillers that have proved to be a driving force towards the progress.

PROGRESS OF JAPANESE AGRICULTURE

1. Progress of the cultivation of rice

Year	Yield	Acreage under cultivation	Yield per acre
(Unit)	(1,000 tons)	(1,000 acres)	(ton)
1945	5,873	7,087	0.83
1950	9,650	7,438	1.30
1956	10,898	8,012	1.36
1959	12,670	8,010	1.57

The rice cultivation, which was so heavily influenced by

droughts and typhoons in former days, is treading the path of increased production year after year of late.

As a result, the imports of rice by this country has yearly declined and its complete self supply is expected to be realized soon. Transition of imports of rice:

(Unit: 1,000 tons)

Year	Quantity
1955	1,246
1956	760
1957	347

In 1960 the imports of rice were made only for trading purposes.

2. *Reasons for increased production*

Then, what are responsible to the increased production? They can be summarized into the following five items:

- (a) Polularization of mechanization.
- (b) Increased supply of manures and fertilizers.
- (c) Improvements in rice cultivation technics.
- (d) Thorough extermination of damages by blight and noxious insets.
- (e) Price supporting policy of government.

3. *Populalization of agricultural mechanization*

The fact that the Japanese farming villages, which deterred the mechanization with excessive population, has dared to pick up the tempo of the mechanization at a bound supported by the government's fostering measures for the mechanization and the rapid progress of agricultural machinery industries is represented in the following table:

Year	Power tiller	Power thresher	Huller	Power sprayer	Engine
1935	210	92,000	105,000	1,000	96,000
1940	3,100	225,000	177,000	5,300	231,000
1950	13,000	828,000	379,000	16,000	340,000
1955	115,000	1,988,000	696,000	76,000	1,134,000
1956	190,000	2,210,000	737,000	110,000	1,475,000
1957	284,000	2,283,000	692,000	155,000	1,601,000
1958	425,000	2,472,000	745,000	195,000	1,918,000

4. Increased supply of manures and fertilizers

Attributable to the smallness of the farming area and the abundance of the farming population, the Japanese agriculture is being carried on so intensively that its harvest per acre is said to be the foremost in the world, and, for that account, the use of manures and fertilizers amounts to very large quantities.

Of these, the supply of chemical fertilizers has been remarkable.

The production of fertilizers by their kinds are as follows:

(Unit: 1,000 tons)

Fertilizer	1935	1955	1956	1957
Ammonium sulfate	612	2,129	2,323	2,481
Lime nitrogen	261	511	508	405
Urea		158	243	343
Super phosphate	1,332	1,795	2,058	1,864
Transformed fertilizer	398	1,009	1,203	1,310
Combined fertilizer	816	488	526	
Others		426	521	722
Total	3,419	6,516	7,381	7,175

5. Improvements in rice cultivation technics

(a) Betterment of grade:

Studies and popularization of superior grades have been carried on by each prefectural agricultural experimental station.

(b) Popularization of warm keeping rice nursery bed and earlier plantation:

Increased production has been achieved as it was protected from damages by frosts and typhoons by hastening the growth of young plants and practicing earlier plantation.

(c) Popularization of improvements of soil and water supply system:

Both have become to be steadily practiced through the helps of government and public bodies.

(d) Deeper plowing by means of tillers and cultivation at proper times.

Direct effect of increased production is seen by means of

deeper plowing coupled with the increased supply of fertilizers.

Cultivation at proper times has also been made possible for the first time by the introduction of efficient tillers. That is to say that the pressure of work at the time of plantation is impossible to get over without looking to the mechanization of farming.

(e) Thorough weeding:

Thorough weeding has been realized by the popularization of weeding medicines, whereby bringing extremely large effects on the increased production.

(f) Popularization of double crops:

Specially mentioning, Kubota Iron & Machinery Works have endeavoured to popularize the double crop system by the Korekawa method, whereby making a remarkable contribution to the increased production of rice by making it possible to practice the double cultivation even in comparatively cold districts.

6. *Thorough extermination of damages by bright and noxious insects*

The popularization of agricultural medicines as well as sprayers and dusters have successfully checked the decrease in the production due to damages by bright and noxious insects.

Especially, helping measures of the government towards the end has been responsible to the prevention and extermination in co-operative ways of large scales.

7. *Price supporting policy of the government*

Due to the fact that the food control system does away with the pressure by the imported rice and determines the price of rice by sliding with the cost of its production, the farmers are enabled to strive for the increased production without worrying about the reduction in the price of rice.

There is no control enforced on besides rice and wheat, and the increased production of such crops as vegetables, fruits, beans, etc., that can easily be converted into money, is being carried on to cope with enhanced demands, whereby contributing to the increases in the income of farmers.

POPULARIZATION OF POWER TILLERS

The effect of the introduction of power tillers is really manifold, which, however, can be summerized as follows:

In the first place, there is an effect on the increase of production resulting from deeper plowing and higher efficiency. In the second place, there is another effect on the increase of production due to the fact that surplus labours can be thrown into the complete control of farming.

In the thrid place, it is sure to contribute to the increase of income and the realization of cultural life of farmers as result of a versatile management or the enlargement of operation scale. Etc.

The following is a rough statement of the above facts:

1. *Higher efficiency The efficiency of power tillers is four times as much as that of cattle*

The area of farm that can be plowed per day (8hrs.)

	One cattle	One power tiller
Plowing	0.24 acre	1.8 acres.
Harrowing	0.26 „	
Total	0.5 acre	1.8 acres.

The tilling speed of a power tiller is four times as much as that of cattle, because a tiller can do plowing and harrowing at the same time, while the cattle has to attend the jobs separately.

Because of the fact that the efficiency is high, the surplus labour can be turned toward the complete control of farming.

2. *Deeper plowing is possibel*

The effect on the increase of production is very immediate as far as the plowing is to be done to the depth of 5-7.5 inches.

3. *Amphibious uses*

As these tillers are light in weight and are of water proof construction, they can be used not only in fields but also in paddy fields. They are specially highly valued in the sense of the emancipation of labour in case of operations in paddies where the work is found to be very severe. They are absolutely necessary in the

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areas where importance is attached to paddy fields, as far as tractors are too heavy to get into them.

4. *Versatility*

In addition to plowing, they are well worth utilizing throughout the year as the loaded engines can be used as motive powers for pumps, threshers, hullers, flour mills, sprayers and generators. Against these advantages, cattle have to be fed for nothing except the plowing season.

5. *Economical aspects*

They are extremely economical as low priced diesel oils are to be used as their fuel and the consumption is of small quantities.

Taking Kubota Power Tillers Model, KMB20 x KND7 (8HP) as an example, its fuel cost is as follows:

0.36 gals. per hour.

Rs. 1.78 per gallon.

Rs 0.64 per hour.

4 hrs. per acre.

Rs. 2.56 per acre.

6. *Comparison of Maintenance expenses between power tiller and cattle*

(the area of operation: 10 acre)

Power tiller		Cattle	
Fuel cost	Rs. 25	Feedstuff	Rs. 460
Repair expense	Rs. 200	Labour for feeding	Rs. 400
Depreciation	Rs. 450	Insurance	Rs. 45
		Horseshoe	Rs. 40
		Small tools	Rs. 15
		Miscellaneous expenses	Rs. 30
		Depreciation	Rs. 60
Total	Rs. 675	Total	Rs. 1,050

MIRACLES OF MACHINERY

Crank-type power-tillers were devised in 1936. And in 1938 vertical axial screw-type power-tillers were put on the market. Both were peculiar to Japan and quite different from ordinary rotary hoes. The crank-type had several sword-like prongs on the crank axle so as to plow with a thrusting and kicking movement.

The screw-type had a spiral hoe that rotated vertically as in drilling. Both of these machines reduced the size of clods and turned over the soil easily and deeply.

Used of these two power-tillers saved considerable labor and this was a highly valued advantage. The number of them in use increased from 216 in 1935 to 2,819 in 1939, and to 7,435 in 1941.

After World War II they made a new start. In 1947 approximately 7,000 were in use. By 1957 the number had increased to 140,000 and today it has exceeded half a million.

The basic reason for the popularity of these power-tillers was the marked improvement of the tractors themselves. The Government has tested these tractors continuously since 1949. This test covers design, structure, material, workmanship, assembling and also the maneuverability of the machines.

From the standpoint of engineering, every part of these tractors was improved to a remarkable degree — engines, transmission, chassis, travelling and maneuvering apparatus, hitch, attachments.

Details on some of these improvements are as follows:

(1) More efficient engines with horsepower ranging down from two and up to ten, thereby breaking the former range limits at both ends. Generally speaking, smaller horsepower was applied to air-cooled high-speed gasoline engines, while bigger horsepower was for water-cooled medium-speed kerosene engines.

(2) More positive system for water seal and exclusion of dirt. From about 1952 onward an oil-seal made of artificial rubber was used to cover the wheel axle and tilling axle. This seal was further improved in 1955 with lips arranged in three folds. This device makes it impossible for dirty water to penetrate into the gear-box. The water seal and dirt exclusion device keeps a machine in good condition and prolongs its durability.

Also, the machine is able to perform the puddling operation. Working in mud is the hardest and heaviest of all the farm work. Mechanization of the puddling operation enlarges the range of utilization and increase of the ratio of utilization, thereby making it easier to pay for the machine. For the manufacturers of such machines, it brings about an enlargement of the market because swampy field districts were not their market in former days. It was a custom that even in dry paddy field farmers used machines only in plowing. The subsequent puddling operation in swampy mud was done by animal power. When puddling can be done

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by power-driven equipment the workable acreage at least doubles.

(3) Improvements of tilling tines (or prongs). Formerly these tines were curved. Now they were redesigned into hatchet-type prongs. The improved type requires more power than the old ones but they turn over the earth better and lessen the tendency to become entangled with troublesome weeds and straw.

(4) Better wheels. Besides the conventional iron wheels with lugs, wheels with rubber tires have been popularized. Various studies were made of the form and the quality of rubber tires. Increase of tractor speed and adoption of rubber tires greatly improved transport facilities. On narrow farm paths, it is more convenient to use a small tractor for conveyance than any other type of automotive vehicle. Iron wheels with lugs were improved in various ways, too. Also, several devices have been tried on the wheels which are to be used exclusively in muddy fields.

(5) Manufacture of larger tractors. The original small tractors of Japanese manufacture were about three H. P. But actually, in working horsepower they might be ranked on the same level as the power of a draft animal or even on a lower level than that. They had the advantage of being able to plow and harrow at the same time, but on the other hand they were inferior to animal power in that they were not suited for deep plowing and did not do a good job in the earth. Increasing their size was a gradual process. As long as they were of the walking type, naturally there was a limit to their becoming bigger (eight H. P. are the biggest tractors at the present time). The development of the engine, completion of the maneuvering structure and better balance of the machine enable us to say that they have successfully been made bigger.

Around 1953, manufacture of the smaller tractors was started and traction type tractors with a two to three H. P. air-cooled gasoline engine were produced. Since their construction was very simple, they could be sold at a low price. Furthermore, they were welcomed by farmers from technical point of view. It can be said that today there is almost no small tractor that does not pull a cart or trailer.

1. Power-Driven Threshers

Power-driven threshers increased rapidly after World War II. In 1945 there were 352,650 such machines in Japan. By 1956 the

number increased to 2,209,769. About 45 per cent of all Japanese farm households own such machines now. The ratio of diffusion is running far ahead of any other kind of machine.

Although power-driven threshers are not an "after the war" product, they have been very highly improved since World War II. That is evident from examination of the electric motors used in those threshers. In prewar days 79 per cent of all motors used to drive threshers were of one-half H. P. The percentage of these small motors dropped to 32 in 1949, and motors of 1 H. P. increased greatly. Two and three H. P. motors increased, too. This increase in horsepower of motors is connected with improvements in the threshers. These improvements include:

(1) Fixing an elevator to the thresher. Threshed paddy nows flows into a vessel automatically. Thresher efficiency has been remarkably advanced by use of this one device. Almost every power-driven thresher has an elevator today.

(2) A self-feeder has been put to practical use. This is a device that automatically transfers paddy sheaves to the threshing drum by use of a chain (incidentally, experimental work on this device was done in the Aichi Prefecture Agricultural Experiment Station as early as 1918).

(3) An automatic secondary (or complementary) threshing apparatus has been devised. The remaining mixture of ear, straw, and paddy after an incomplete winnowing at the time of threshing is called No. 2. This new device transfers the mixture automatically to the threshing drum by means of a blower so that it is threshed and winnowed again. By this process the paddy sheaves are thoroughly sorted out into three parts: paddy, straw refuse, and dust.

(4) Threshers produced recently have a device which discharges straw after the threshing.

Once paddy sheaves are put on the forwarding board of an automatic thresher with these four devices all the subsequent processes, up to putting the threshed paddy into containers, are carried out automatically.

In spite of these improvements, the size and the weight of the machine has become even smaller and lighter. Two men can carry it easily. Until about 1950, it weighed about 175 kg. Then the weight was reduced to 120 kg. Recently a small thresher weighing only 95 kg. has been put to practical use.

2. *Power-Driven Huskers*

Like the threshers, power-driven huskers are on the way to more complete automatic action, smaller size, and lighter weight.

The biggest improvement is perfection of automatic regulation of the winnowing operation. Hardly any use of human hands is necessary now in operating these machines. The old-fashioned basket and conveyer (which were used as an elevator) have been replaced by a "thrower" device that automatically catches grain that was not hulled in the initial process, and feeds this unhulled grain back to the rollers. This has simplified the structure, reduced the size by half, and reduced the weight by 30 per cent. Also, the frame of the machine is now made of metal instead of wood.

It is noteworthy that both the power-driven threshers and the power-driven huskers have been reduced in size and weight without any loss in their respective capacities.

3. *Power Sprayers and Power Dusters*

One of the new and big developments in postwar farming techniques is the prevention and control of plant diseases and insect damage.

This development came about when many new and highly effective agricultural chemicals were introduced and power sprayers and power dusters were improved.

The power sprayers and the power dusters used to apply these chemicals are very efficient and light in weight. Nozzles have been produced, too, to fit various conditions and purposes. The light weight of the sprayers and dusters has naturally made them more portable and easy to use in paddy fields and dry farm fields. Small tractors also are useful in making the sprayers and dusters more portable.

There is a possibility that the outbreak or the generation of disease and harmful insects in postwar rice cultivation is growing in proportion to such things as the increase in use of fertilizers and the new practice of early transplanting. The acreage which suffered from disease and insect damage was 56 per cent greater in 1952 and almost four times greater in 1956 than in the year 1949. Decreased yields per hectare due to such damage, however, has been diminished to 56 per cent in 1952 and to 34 per cent in 1956 (using the year 1949 as 100%). This may be explained by the ex-

tensive use of agricultural chemicals to control or prevent insect and disease damage. The amount spent for this purpose per farm household, increased to 296 per cent in 1922 and 578 per cent in 1956 (again using the year 1949 as 100%).

The number of power sprayers and power dusters has increased, too. In 1956, the total number of such machines in use was 1,152,000 — more the 10 times the numbers on farms in 1949.

Power sprayers and dusters used in producing fruits, vegetables, and other horticulture crops are mostly owned by individual farm households. The expense of preventing and controlling disease and insect damage is the largest item in production costs. Spraying and dusting for preventing and controlling insects and diseases must be done frequently — another reason why each such farm household owns its own machine.

But in the case of rice, wheat, and barley most of the power sprayers and dusters are jointly owned by groups of farmers. This is because the prevention and control operations must be done at an appropriate time, properly, and simultaneously. Governmental policy has encouraged joint ownership. The Agricultural Disaster Indemnity Law was enacted in 1947. The following year a drive for increasing food production was launched with emphasis on prevention and control of plant diseases and insect damage. A systematic prevention and control program was set up that linked the National Government, prefectures, agricultural organizations, and farmers in a joint effort. Power sprayers and dusters figured prominently in every stage of the program. Government agencies loaned such machines and helped in other ways according to the severity of the outbreak of disease or the generation of insects. Joint prevention and control squads composed of farmers handled the field work. Agricultural experiment stations, extension workers and other agencies in the program were responsible for forecasting possible outbreaks of diseases or the generation of harmful insects and for informing farmers of proper control measures.

There are several types of portable manpower sprayers: the shoulder type, the knapsack type and the automatic shoulder type. Then there are the big sprayers, operated by means of an engine.

For use in fruit orchards, the fixed-pipeline installation for spraying large areas quickly is on the increase, as are speed sprayers for use with a four-wheeled tractor.

Also, there are both large and small hand dusters.

CHAPTER XVIII

MADE IN JAPAN

Today Japan is far better equipped than ever before to meet the exacting demands of world competition. The index of total industrial production is more than double what it was in the 1934-36 period. Steel production runs at about 12 million tons per year as against five million tons then. Output of machinery of all kinds, including ships, has quadrupled since pre-war days, and output of chemicals, in many ways Japan's most enterprising business, has more than tripled.

In my book 'Germany Reborn' (1953) I had dealt at length with the 'miracle of German Rebirth'. The same is equally true of Japan's miraculous recovery. In some industries production has gone up three to four times the pre-war highest production level. As I said in the first chapter the miracle is the result of hardwork and some happy circumstances.

Lord Buddha has said 'Hardwork is your luckystar. You alone create your own destiny'. Same is true of nations.

80 YEARS' HARD WORK

Japan started her industrialization in the 1880's, but in the ensuing short period, remarkable progress has been made and she is now ranked among the leading industrial nations of the world.

Up to about 1953, however, light industries producing consumer goods predominated in Japan's industrial activities. From that year on heavy industries were encouraged under the close protection of the government, and especially those concerned with urgent military requirements. While such basic enterprises as coal mining and steel manufacturing registered expansion, many new industries sprang up.

For instance, Japan did not produce even a single ton of alu-

minum before 1933, yet the 1944 output of this light metal amounted to 136,800 tons. Japan was able to turn out only a few scores of airplanes about the middle of the 1920's. Yet in 1944 a total of 24,000 were produced.

Having suffered a severe setback toward the close of World War II, Japan's industry faced all sorts of difficulties in its postwar rehabilitation. Ten years later, in 1955, however, the production index for the manufacturing industry stood at 173.8 on the basis of 100 for the 1934-36 average. Now it is more than double.

TEXTILE INDUSTRY

The textile industry continues to be a major factor in the Japanese national economy, from the view-point of production and export alike.

Statistical returns for 1956 show that the annual output of woolen yarn amounted to 232 million pounds, while that of cotton textiles was 3,479 million square yards, silk fabrics, 212 million yards, rayon fabrics, 920 million yards, rayon staple fabrics 1,112 million yards, and woolen textiles, 220 million yards.

Mention should particularly be made of the fact that the world-famous silk industry of Japan has declined mainly because of competition from new chemical and synthetic fibers.

METAL INDUSTRY

Japan produced almost six million metric tons of pig iron during 1956, in addition to 11 million tons of steel ingots, 8 million tons of ordinary rolled steel and almost half a million tons of special rolled steel.

The bulk of the iron ore consumed in Japan is imported from foreign countries. Japanese steel interests are making constant efforts to secure a steady flow of iron ore imports, not only through the ordinary channel of commercial transactions but also by means of investments in iron mines, in India, the Malayan Federation, and the Philippines.

As for non-ferrous metals, Japan produced 126,000 tons of copper and almost 66,000 tons of aluminum during 1956.

Among the new metal industries is the production of titanium. Almost the whole of Japan's production has hitherto been exported to the United States and Great Britain.

MACHINE MANUFACTURING

Rapid progress has been made in the machine manufacturing industry since its introduction into Japan at the end of the 19th century. Prewar Japan was self-supporting in shipbuilding and in its manufactures of rolling stock and of textile and other machinery. These were also important items of Japan's export trade.

The postwar recovery of this industry was also rapid. In 1955, 190 percent of the prewar production volume had already been attained.

Japan is now the only Asian country which is producing and supplying machinery to the Far Eastern area.

With plant modernization and the adoption of new techniques, the industry is expected to continue to play a prominent role in the economic recovery of Japan.

Main export items are ships, electric machinery, cotton spinning and weaving machinery, and rolling stock.

The Industrial Machinery Association reports that a survey made of 60 major member companies revealed that new orders placed with them during 1956 amounted to \$461 million, and that this total was easily exceeded during the first nine months of 1957, when the total was \$536 million. But the peak was reached in May, 1957 when a mark of \$73 million was attained in a single month.

The field of electronics has become increasingly popular in Japan's machinery manufacturing industry of late, as is reflected in the great production of TV receiving sets, transistor radio receiving sets, electronic computing machines, electrical surveying and measuring apparatus, and automation equipment.

The production of machine tools is estimated to have amounted to \$27 million during 1957. Japanese products were the object of favorable comments from foreign visitors to the Tokyo International Trade Fair, 1957 and the Osaka International Trade Fair, 1958.

The production of household electrical appliances, such as washing machines, refrigerators, fans, electric cooking pots, and vacuum sweepers, has also increased enormously of late. In Japan today the rate is one electric fan to every six households, one washing machine to eight households, and one TV set to 22 households, as of the end of September, 1957.

Cameras are another item which has seen a marked increase.

During 1957, production was almost entirely concentrated on the 35 mm lens-shutter type of cameras. Exports increased, while the domestic demand reached saturation point.

The average monthly production of bicycles is almost 200,00.

Shipbuilding is another industry which passed its peak during 1957. Authorized in 1957 was the construction of 32 at ships, 787,000 gross tons for export (valued \$298, 560,000) and 103 ships, 796,000 tons for domestic shipowners. In 1956, Japan built 2,180,000 tons of ships for export and 600,000 tons for domestic shipowners.

During 1957, Japan launched 2,424,000 gross tons of new ships, followed by Britain's 1,407,000 tons and (West) Germany's 1,232, 000 tons.

Japan's automobile industry started with the manufacture of heavy trucks. In recent years, midget midge 4-wheeler trucks have been produced in large numbers. Meanwhile, the production of passenger cars has also increased, especially since 1957 when many found their way to overseas markets. The production of automobiles in 1956 amounted to 111,066 but the total increased to 181,443 in 1957. The increase in the production of midget 4-wheeler trucks was especially noteworthy.

In the railway rolling stock manufacturing industry, the production of A.C. locomotives began during 1957, tests having proved a success. Listed below is the output of rolling stock during 1956 and 1957 (January to September) classified according to types:

Item	1956	1957
Steam locomotives	158	33
Elec. locomotives.....	77	121
Internal combustion locomotives		
.....	28	83
Passenger coaches	1,391	2,882
Freight cars	6,210	17,560

The remarkable increase in the production of freight cars was brought on by the pressing need to ease freight traffic congestion.

CHEMICAL INDUSTRY

The chemical industry has developed into one of the most important enterprises in Japan, in spite of its relatively short historical background, and its being handicapped in the supply of raw materials. Japan must rely on foreign sources for such items as

salt, potassium salt, phosphate ore, and oils and fats. Pyrite ore and limestone are available in Japan.

The main products of the industry include soda, chemical fertilizers, dyestuffs, oils and fats, and medicines. Production in 1956 was as follows: (unit, 1,000 tons)

Carbide	736
Caustic soda	681
Soda ash	391
Sulphuric acid	3,779
Chlorine	269
Sulphate of ammonia	2,320
Calcium cyanamide	466
Calcium superphosphate	2,030
Pure benzole	122
Soap	304
Dyestuffs	192

Japan's exports of chemical products amounted to more than \$100 million during 1956 while those of chemical fertilizers totaled almost \$50 million.

IMPORTS AND EXPORTS

INDUSTRIAL MATERIALS:

Phosphate rock	100.0	100.0	100.0
Raw Cotton	100.0	100.0	100.0
Wool	100.0	100.0	100.0
Tin ore	87.2	94.9	86.7
Bauxite	—	100.0	100.0
Iron ore	93.4	78.3	88.2
Coal	11.1	6.5	7.6
Crude oil	93.5	96.0	97.1
Crude rubber	100.0	100.0	100.0
Rayon pulp	81.4	22.7	25.7
Salt	65.0	78.2	78.6

To begin with, the shortage of domestic food resources makes it necessary for Japan to import from \$500 million to \$600 million worth of foodstuffs annually in order to feed her population.

Next comes the shortage of raw materials for her industries. As is shown in the foregoing table, Japan is dependent on foreign supplies of raw cotton, wool, crude rubber and phosphate rock up to 100 percent, while more than 90 percent of the supply of iron

ore and petroleum must be sought abroad.

The total values of exports and imports, based on commodities which were cleared through the customs, during the last five years were as follows: (unit, \$1 million)

Year	Exports	Imports
1953	1,274	2,409
1954	1,629	2,399
1955	2,010	2,471
1956	2,500	3,229
1957	2,852	4,283

Of the imports and exports during fiscal 1956, those exceeding \$100 million in value were as follows:

Main Import Items

	Value (\$1 million)
Raw cotton	510
Petroleum	350
Wool	250
Scarp iron.....	240
Wheat	160
Iron ore	160
Sugar	120
Coal	100

Main Export Items

Ships	310
Cotton goods	260
Iron and steel	210
Rayon staple fabrics	130
Textiles and clothing	120
Fish	110

The vast industrial and commercial empires which are responsible for the revival of Japan's prosperity are numerous but the following pages cover the history of some of them.



MIRACLE OF MITSUBISHI

In 1942 Mitsubishi completed its last great battleship, the ill-fated 18-inch-gun Musashi. Since World War II its clanging yards and six busy ways have turned out no less than 780,000 tons of merchantmen and tankers for the world. And in 1957 Japan became the foremost shipbuilder of the world, asserting her re-emergence as an industrial power.

*These new ships of the beautiful names — World Ideal, World Independence — are the authentic symbols of the New Japan.
— Fortune, New York.*

MITSUBISHI SHOJI KAISHA, LTD.

(General importers and exporters)

Capital: ¥10,000 million (approx. US \$28 million)
 President: Kiyohiko Sho
 Head Office: Mitsubishi Shoji Bldg., Marunouchi,
 Tokyo
 Tel: (211) 0211, 0411

Business Departments:

Coal Dept., Petroleum Dept., Ferrous Metal Domestic Dept.,
 Ferrous Metal Overseas Dept., Non-Ferrous Metal Dept., Machinery
 Dept. A, Machinery Dept. B, Machinery Dept. C, Produce Dept.,
 Fertilizer Dept., Oil & Fats Dept., Marine Products Dept., Fibre
 & Textile Dept., Raw Cotton Dept. (Osaka), Silk Dept. (Yokohama),
 Wool & Hemp Dept., Chemicals Dept., Lumber, Pulp & Paper
 Dept., General Merchandise Dept.

It has 29 Branches in key cities throughout Japan.

Overseas Network:

(Branches, Subsidiaries, Associates, & Correspondents)

North America — New York, San Francisco, Los Angeles,
 Seattle, Portland, Houston, Chicago, Toronto, Vancouver.

Central & South America — Habana, Caracas, Mexico, San
 Salvador, Bogota, Lima, Sao Paulo, Rio de Janeiro, Santiago,
 Buenos Aires.

Europe — London, Duesseldorf, Hamburg, Paris, Milano.

Africa & Near East — Baghdad, Cairo, Johannesburg, Mombasa, Casablanca, Kuwait, Beyrouth, Damascus, Teheran.

Asia — Calcutta, New Delhi, Bombay, Madras, Karachi, Dacca, Colombo, Rangoon, Bangkok, Saigon, Phnom Penh, Vientiane, Singapore, Kuala Lumpur, Djakarta, Manila, Hongkong, Taipei, Naha.

Oceania — Sydney, Melbourne, Auckland.

Outline:

The former M. S. K., Mitsubishi Shoji Kaisha, Ltd., which was the leader in Japan's foreign trade in prewar days, was dissolved under an Occupation Directive after the War. It was, however, virtually reborn in 1954 to meet the newly developing economic situation, and is now even more powerful than its predecessor. The Company is outstanding in imports and exports, and in the volume of its domestic and overseas trading. It enjoys the highest reputation both at home and abroad. Its employees number over 5,000 and its annual turnover amounts to approximately US\$1,700 million.

POWER SERVES PEOPLE

The comforts of the life are the assured gifts of electric power

Mitsubishi Electric engineers, workers...all perform their important tasks in making life comfortable...they help in the manufacture of every type of electrical equipment from giant generators and transformers to small home appliances that make life easier. For matchless experience and a distinguished history of achievement, look to the THREE DIAMONDS of the Mitsubishi Brand...the symbol of QUALITY and INTEGRITY.

MITSUBISHI ELECTRIC MANUFACTURING COMPANY

(Mitsubishi Denki Kabushiki Kaisha)

Capital: ¥19,200 million (approx. U.S. \$53.3 million)

President: Yoshinaga Seki

Head Office: 3, Marunouchi 2-chome, Chiyoda-ku, Tokyo

Tel. (201) 1,611

Cable Address: "MELCO TOKYO"

Plants. Kobe, Nagoya, Nagasaki, Fukuoka, Itami, Electronics works, Himeji, Nakatsugawa, Wakayama, Shizuoka, Fukuyama, Ofuna,

Setagaya, Koriyama, Kita-Itami Works,
an Engineering Laboratory and a Standard
Products Engineering Laboratory.

Principal Products:

The Company manufactures several thousand various electrical and mechanical products ranging from tiny transistors to large power generating plants. They may be classified into the following categories:

Electric Equipment for Power Plants and Substations.

Electric Equipment for the Mining, Marine and other Industries.

Electric Equipment for Railways.

Electronic Equipment.

Electric Appliances for Household Use.

With its head office located in Tokyo, the Company now owns and operates 15 plants, 15 sales offices and 2 engineering laboratories, covering more than 2,424,000 square meters of ground in total. Its employees number well over 30,000.

SHIPS AND ENGINES

MITSUBISHI NIPPON HEAVY-INDUSTRIES, LTD.

(Mitsubishi Nippon Jukogyo Kabushiki Kaisha)

Capital: ¥9,000 million (U. S. \$ 25 million)

President: Toshiki Sakurai

Head Office: 4, Marunouchi 2-chome, Chiyoda-ku, Tokyo

Tel: Tokyo (281) 2351-2369

Cable Address: "BISHINIPPON TOKYO"

Telex: TK2282 (BISIJUKO)

Principal Activities:

The construction and repair of all types of vessels.

The manufacture of Diesel engines; boilers; gas turbines; other power machinery; machines for the chemical, tobacco, pulp and paper industries; food processing machines; atomic equipment; buses, trucks, special purpose vehicles, and various construction equipment; iron and steel structures, etc.

The Yokohama Shipyard & Engine Works has a long history dating back as far as 1891, during which more than 600 ships of various classes and types have been constructed. With modern facilities and latest technical skills, 40,000 deadweight ton class super-tankers have recently been built in succession.

The Company has manufactured over 1,000,000 B. H. P.

Yokohama M. A. N Diesel engines since 1929 under a license from Maschinenfabrik Augsburg-Nürnberg A. G. in Germany.

FIRST IN THE WORLD

MITSUBISHI SHIPBUILDING & ENGINEERING COMPANY, LIMITED (MITSUBISHI ZOSEN KABUSHIKI KAISHA) has three modern shipyards and engine works located in Nagasaki, Hiroshima and Shimonoseki, as well as a precision machine works in Hiroshima. The Company has the distinction of being the oldest and largest shipbuilding concern in the Orient; in addition it occupied the leading position in the world in the volume of ship construction successively in the years 1956, 1957 and 1958. Its activities comprise the design, construction and repair of ships, the manufacture of main propulsion and auxiliary machinery for vessels, the construction of power plants and machinery for the iron & steel, cement, pulp manufacturing, oil refining, chemical and textile industries, mines, etc., as well as machine tools and other machines in general.

Head Office....4, Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan.

Phones....Tokyo (281) 5111-3111-0331

Cable Address....DOCK MITSUBISHI

P. O. Box....Central 10 Tokyo

Code used....A C M E

Branch Office....Osaka·Kobe·Fukuoka·Sapporo

New York Office....Equitable Bldg., 120 Broadway, New York 5., N. Y.

Hongkong Office....Printing House, 6, Duddell Street, Hongkong
Düsseldorf Resident Engineer....c/o Deutsche Mitsubishi Export-und Import-Gesellschaft m. b. H., 12 Grünstrasse, Düsseldorf, West Germany.

Works....Nagasaki Works · Shimonoseki Works · Hiroshima Works · Hiroshima Precision Machine Works

ASAHI GLASS CO., LTD. (Asahi Glass Kabushiki Kaisha)

Capital: ¥8,000 million (approx. U. S. \$22.2 million)

President: Kanichi Morimoto

Head Office: 16, Marunouchi 2-chome, Chiyoda-ku, Tokyo

Tel: Tokyo (281) 4821

Cable Address: "GLASS TOKYO"

Plants: Amagasaki, Makiyama, Tsurumi, Iho, Yodogawa and Chiba Factory

Principal Products:

Sheet glass, Polished plate glass, Figured glass, Wire glass and other special glass (Safety glass — LAMISAFE, TEMPERLITE, PAIR GLASS, HISHI KOOL); Soda ash, Caustic soda and other chemical products; Refractories; Fertilizer-Ammonium Chloride.

Established in 1907 by the late Baron Hisaya Iwasaki, the Company was the first in Japan to succeed in the industrial manufacture of sheet glass. The Company employs about 7,000 in its six plants. Its exports are valued at \$5 million annually; its subsidiary concerns in Japan number sixteen, and it owns the Indo-Asahi Glass Company overseas. INDO-ASAHI GLASS CO., LTD 30, CHITRANJAN AVENUE, CALCUTTA.

MAKING JET FIGHTERS

MITSUBISHI HEAVY-INDUSTRIES, REORGANIZED,
LIMITED

(Shin Mitsubishi Jukogyo Kabushiki Kaisha)

Capital: ¥12,348 million (U. S. \$34.3 million)

President: Yoshito Yoshida

Head Office: 10, Marunouchi 2-chome, Chiyoda-ku, Tokyo

Tel: (211) 3411, 3421, 3431, 3441

Cable Address: "HISHIJU TOKYO"

Branch Offices: Osaka, New York, Calcutta, Bombay

Principal Activities:

Shipbuilding and Ship-Repairing; the manufacture of Machinery for Land and Marine Uses; Auxiliaries, Boilers, Steam Turbines, Water Turbines, Diesel Engines, Atomic Power Equipment, Small Universal Engines, Refrigerators, Textile Machinery, Pulp and Paper Machinery, Food Processing Machinery, Chemical Machinery, General Industrial Machinery, Steel Structures, Rolling Stock, Automobiles (Small Cars; Busbodies, Jeeps, Trucks, Three-wheel Trucks; Motor Scooters), Agricultural Machinery, etc.

As is widely known, the Company is the prime contractor for jet fighters with the Japan Defense Agency. It also manufactures aircraft and helicopters for private companies.

KUBOTA IRON & MACHINERY WORKS, LTD.

Kubota is a house-hold name in farming circles all over Asia. The origin of Kubota Iron and Machinery Works, Ltd. dates back to February, 1890. The company first engaged in the manufacture of castings, and later stepped in to the manufacture of machinery. It has continually expanded its service to the world.

Now with a capital of 13,500,000,000 Yen and 8,500 employees and many factories throughout the country, the company is one of the leading manufacturers of industrial machinery. It is especially engaged in the manufacturers of farm implements.

The age has passed when farmers are satisfied with self-sustenance and self-sufficiency and now farm-management has become so improved that the farmers increase the profit by utilizing the field as well as the time for dairy farming, fruit-growing and gardening.

Farm mechanization has exhibited its splendid power in the development of new villages. Heavy labor is being replaced by machines and the farmers are now able to live cultured lives just as in the cities.

All types of farm implements — Oil Engines, Diesel Engines, Power Tillers, Sprayers, Threshers, Rice Hullers, etc. — are made by the company in this great venture.

The power tiller, especially, can do 21 different farming jobs such as mowing, ridging, field leveling, plowing, etc., 20 times faster than by hand.

To help the farmers, Kubota is furthering plans to form a "Research Laboratory for Agricultural Economics", an institute which would greatly improve the farm villages and farm conditions.

YAWATA IRON AND STEEL

When the government-owned Yawata Works began operating in 1901, it was capable of producing 90,000 tons of steel products annually. In succeeding years, Yawata Works kept pace with the developing national economy and played an important part as the pioneer of Japan's steel industry.

In 1934, Yawata Works merged with several private companies to form the Japan Iron & Steel Co., Ltd. This merger was a means of meeting the growing steel demand and of accelerating modernization within the industry.


In 1950, in compliance with certain legal measures for reorganizing Japan's postwar economy, Japan Iron & Steel Co., Ltd. was dissolved and Yawata Iron and Steel Co., Ltd. was born as an independent private enterprise. The new Yawata Company's main production facilities were centered in Yawata Works.

Since then, the company developed vigorous large-scale programs of modernization and expansion. As a result, the operations of the company rapidly developed, and the company's position as pace-maker for the steel industry has been greatly enhanced.

In anticipation of the ever accelerating demand for steel, Yawata, in 1959, began construction work on a new integrated steel works at Sakai near Osaka. In Sakai, a large sectional steel plant, it is expected, will be constructed early in 1961.

PRODUCTION

In 1959, Japan, as the world's fifth largest steel producer, produced 16,600,000 tons of crude steel. Yawata produces about one-third the pig iron and one-fourth the steel ingots and steel products of the total national production. The company's products are diversified for use in many industries, where they are known for their excellent qualities.

The famous *Yawata* trade mark  is a guarantee of integrity, and the most advanced production techniques.

Yawata produces all types of steel products vital to basic industries such as shipbuilding, mining, building, construction, auto-

mobile and electrical machinery. Production facilities, among the most modern in the world, enable the company to mass produce steel products of the highest quality.

FUJI IRON AND STEEL

It can be said that the Fuji Iron & Steel Co., Ltd. is the oldest company in the Japanese steel industry, by virtue of the fact that its Kamaishi Works was established well over a century ago.

The government-owned Yawata Iron Works, the Kamaishi Iron Mine Co. and four other private concerns were amalgamated in 1934 to form the Japan Iron and Steel Co., Ltd. which, as is well known, was the biggest steel company in the Orient. After the termination of World War II, however, it was split into two concerns, i.e. the Fuji Iron and Steel Co., Ltd. and the Yawata Iron and Steel Co., Ltd., on April 1, 1950, under the Law for the Elimination of Excessive Economic Power Concentration.

Fuji's three main works are most modern and fully integrated, their rolling mills being acknowledged as on the highest level among world leading steel companies.

The products manufactured by these highly-efficient facilities, on the basis of long and profound experience, comprise pig iron, steel ingots, various kinds of finished steels, semi-finished steels, chemicals, fertilizers, etc. Each of them is produced under strict quality control, and they have all earned a high reputation in consuming industries, being supplied in large quantities to the domestic and overseas markets.

Japan produced almost six million metric tons of pig iron during 1956, in addition to 11 million tons of steel ingots, 8 million tons of ordinary rolled steel and almost half a million tons of special rolled steel.

The bulk of the iron ore consumed in Japan is imported from foreign countries.

ASAHI CHEMICAL INDUSTRY CO., LTD.

Asahi Chemical is an integrated chemical company backed by its own power generation of about 90,000 KW. and its raw material lines such as ammonia and soda derivatives. Asahi stands on a proud history and tradition in Japan's chemical field as the first to produce synthetic ammonia and second to manufacture rayon.

Asahi owes its birth to the late Jun Noguchi of Japan Nitrogenous Fertilizer Company who formed the company in 1923 as its Nobeoka Plant in the south-west of Japan. The founder succeeded in synthesising ammonia by introducing the Casale process and began to manufacture ammonium sulphate.

In May, 1931, the company became independent as the Nobeoka Ammonium Rayon Company, Ltd. absorbing thereafter various subsidiaries of the mother company where rayons and explosives were produced. After several transformations, Asahi has developed into its present name in 1946.

Not alone as the exclusive manufacturer of cuprammonium rayon throughout the Oriental countries, Asahi today has grown into a gigantic, multiple enterprise producing a wide variety of merchandise, ranging from viscose rayons to synthetic fibers-acrylonitrile fiber Cashmilon (trademark), from industrial explosives, smokeless powder to chemical fertilizers (ammonium sulphate, potash-nitrophosphate), chemical seasoning Asahi-Aji (tradenname of monosodium glutamate) and various other chemical products.

Also supplied are vinylidene chloride, synthetic fiber "Saran" and polystyrene "Styron" by Asahi-Dow Limited which Asahi formed in 1952 jointly with the Dow Chemical Company of the United States in a successful tieup.

Capital	¥8,000,000,000.
President	Takenobu Kataoka
Osaka Head Office	25, Dojima-hamadori 1-chome, Kita-ku, Osaka (Cable Address: BEMBERG OSAKA)
Tokyo Office	12,1-chome, Chiyoda-ku, Tokyo

NIPPON RAYON CO., LTD.

Nippon Rayon Co., Ltd., one of the most advance-minded manufacturers of chemical fibres in Japan, was founded in 1926 with the object of manufacturing viscose rayon. During subsequent years, not only its production capacity, but its range of production activities also expanded into its present versatile integrated organization. It is of special significance that the company took the initiative in developing and manufacturing high tenacity rayon yarn in Japan, a field in which it holds leadership to this day.

Most prominent of the experimental work carried out at the company's Integrated Research Institute during the period beginning in the early 1940's was basic research on polyamide fibres, and in 1949, a semi-industrial pilot plant was established to further the industrialization of nylon 6. In 1954, a technical agreement was concluded with Inventa A. G., Luzern, Switzerland, to supplement what research that had already been completed, which was followed by full scale commercial production of NRC NYLON at the Uji Plant in mid 1955. Thus, Nippon Rayon Co., Ltd., enabled itself to strengthen its position as a versatile chemical fibre producer.

Nippon Rayon's nylon products are marketed under the registered trade name "NRC NYLON" These products have been heretofore marketed under the trade name "GRILON", but as of April, 1959, the above mentioned change to "NRC NYLON" was made for commercial reasons.

In marketing its NRC NYLON, the company sends trained technical specialists, time after time, to various parts of the world to furnish technical know-how as may be required by its clients. This technical co-operation scheme has been particularly well accepted by many mill owners using NRC NYLON filament yarn, staple and stretch yarns. It has long been established as the basic policy of NIPPON RAYON CO., LTD, OSAKA, to place emphasis on the interests of clients.

TEIKOKU RAYON CO., LTD.

“TEIJIN”

The Japanese industry irrespective of whatever branches, is, at the present moment, witnessing a technical innovation on an unprecedented scale. In particular, the man-made fibre industry has seen such a striking progress in the research of polymers, in keeping with the phenomenal technical developments brought about in recent years, that in the opinion of some people, who are conversant with the situation of this particular industry, many of the conventional plastics and fibres will become obsolete within ten years to come.

With the situation as described above as a background, it may not be out of place to present here a brief description of the history of strides made by this company during the past years, as well as of the extent of research and manufacturing activities currently being undertaken.

It need not be reiterated herein that *Teijin* is the oldest established man-made fibre company in Japan, and, in the length of its history, it comes only after the Courtaulds of England, the Glanzstoff of Germany and the American Viscose of the United States.

The year of 1918, when *Teijin* embarked upon the commercialization of viscose rayon through its own researches, should be marked as the dawn of the man-made fibre industry in Japan.

Afterwards, the production of rayon staple was started in 1939, and, in 1949, the manufacture of spun rayon yarn was embarked upon. In the 1950's, the company started the establishment of an acetate filament test plant, and in 1950, the production of high tenacity rayon yarn, which was closely followed in 1955 by a full-fledged production of acetate filament yarn, and, in 1956, through its own unique technique, started the production of “Teviron,” the first synthetic polyvinyl chloride fibre. In June, 1958, the production of polyester “*Teijin Tetoron*,” known as one of the three greatest synthetic fibres, was commenced under a license from the Imperial Chemical Industries Limited of England.

SONY — STORY OF A PIONEER

One of the most remarkable export success stories registered by any country since the end of World War II has been written by the Japanese electronics industry.

Appropriately enough, the spearhead of this amazing export success has been a company which is almost as young as the industry itself—the Sony Corporation. In a land where tradition still plays as important a role in business and industry as it does in daily living, the success of Sony has been doubly significant.

Immediately after World War II on October 1, 1945, a group of young engineers led by President, M. Ibuka, ventured into the first hardship of manufacturing measuring and communication equipments and in May 7, 1946, established Tokyo Tsushin Kogyo, Ltd. with a capital of only \$500, the beginning of the present SONY CORPORATION. Later, research of magnetic recording bore fruit and the first Tape recorder was turned out and together with the Soni-Tape contributed greatly towards audio-visual education throughout the nation's schools. Also, many orders for installation of broadcasting equipment from N. H. K. (Japan Broadcasting Corporation) and other broadcasting stations were received and the name of Tokyo Tsushin Kogyo, Ltd. became known for its professional quality. Later, setting an eye on transistors, in October 1954, Sony developed the first transistor in Japan. Subsequently Sony developed the transistor radios and their excellence as portable radios with long battery life made these radios the most popular item of its time.

At present 90% of all portable sets are transistorized. Sony Radios have constantly provided headlines. In 1956, the "Pocketable Sony" caused a sensation in radio circles, in 1957 it was the "All Wave Sony", in 1958 it was the first all transistorized F. M. radio.

SUMITOMO — A PIONEER

THE PRESENT Sumitomo Group has behind it a history that goes back over $3\frac{1}{2}$ centuries to 1590. It is no exaggeration, then, that Sumitomo is one of the oldest business organizations existing in the world. Today, it is one of the three largest business combines in Japan engaged in such diverse fields as heavy industry, mining, finance and commerce. A reputation of technical excellence and sound management has always been associated with the name of Sumitomo almost since the days of the organization's founding.

SUMITOMO AND COPPER

It is a matter of historical interest to note that the veritable seed from which the Sumitomo enterprises sprouted was COPPER, a metal which has usefully served mankind in many ways since ancient times. The history of Sumitomo is like tracing the copper history of Japan — from the primary metal to the finished products. Let us now go back several centuries and trace this process of historical development.

Towards the end of the 16th Century, Riemon Soga, the founder of the Sumitomo enterprises, developed in the city of Kyoto a new process of separating silver from copper in the refining process. He learned this process from a foreigner and by improving it still further he developed a method of refining copper known as "Nanban-buki" which brought him fame and wealth. At that time this process was an epoch-making event, because until then Japanese exporters were suffering considerable loss by selling copper which contained substantial amounts of silver. Riemon's son Rihei-Tomomochi was adopted into the family of Masatomo Sumitomo, the founder of the Sumitomo family, who operated a drug and book store in Kyoto. Rihei changed his work to carry on the business of copper refining and moved his base of operations to Osaka. His descendants continued to carry on this family enterprise until in time it became Japan's largest copper refining operation.

The end of the 16th Century in Japan was the turning point

of history. The Hundred Years' War, which had been raging on came to an end and was to mark the beginning of uninterrupted peace which was to continue until the middle of the 19th Century. This period proved to be a boon to Japanese culture. Industry grew and flourished as never before.

Taking advantage of these circumstances. Sumitomo, in addition to copper refining, took up trading in copper products. It also launched into the business of managing a copper mine. The discovery of the rich Besshi copper mine in Shikoku in the year 1690 enabled Sumitomo to become the leader in the field of copper.

THE MAIN SUMITOMO COMPANIES

SUMITOMO METAL MINING Co., LTD.

This company is one of the foremost mining companies in Japan in the nonferrous field. It is the biggest producer of gold and one of the top 3 in the refining of copper and nickel.

SUMITOMO COAL MINING Co., LTD.

The annual coal production volume of this company is approximately $2\frac{1}{2}$ million tons, mostly high grade coal for carbonization and gas production.

SUMITOMO MACHINERY Co., LTD.

In the manufacture of heavy industrial equipment such as cranes, conveyors, mining equipment, industrial machinery and equipment for steel mills, this company occupies a pedestal of high respect. Exports of coal separation plants, etc., amount to a considerable figure to such destinations as India.

SUMITOMO METAL INDUSTRIES, LTD.

A fully integrated steel company, this company is unique among the big steel producers in that its products range from general steel products to high-quality finished, rolling stock accessories (tires, wheels, etc.), tubular steel products, etc.

SUMITOMO LIGHT METAL INDUSTRIES, LTD.

Until recently this company was a part of the Sumitomo Metal Industries, Ltd. But it became an independent company in order that it could better cope with the increasing demand for non-ferrous metals, especially, aluminum products.

KANTO SPECIAL STEEL Co., LTD.

This company is a representative maker of high-quality cast

iron and forged steel rolls in Japan.

NIPPON PIPE MANUFACTURING Co., LTD.

As a maker of electric conduit tubes and accessories, as well as electric resistance welded steel tubes and pipes, a high technical standard is maintained by this company.

NIPPON STAINLESS STEEL Co., LTD.

This is one of the three largest stainless steel manufacturing companies in Japan.

OSAKA TITANIUM Co., LTD.

An undisputed pioneer in the manufacture of titanium sponge in Japan, this company is the No. 1 producer of this metal with a production quantity amounting to 40% of the country's total. The great bulk of the production goes to the United States. Headway has been made, recently, toward commercialization of metallic silicon production.

OSAKA KINZOKU KOGYO Co., LTD.

A machinery division and a chemical division co-exist here. This company is the only Freon gas manufacturer in the Orient. Used in refrigerators and as fluorocarbon resin, Freon gas is Osaka Kinzoku's big production item. The machinery division makes the "Daikin" brand air-conditioner and room cooler.

TOYO ALUMINUM K. K.

A joint-venture company, the founding goes back to 1931 when Sumitomo Metal Industries, Ltd. and Aluminum, Ltd. of Canada invested on a 50-50 basis to establish a company to make aluminum foil. The company ranks at the very top in this field, making one-third of local production.

SUMITOMO ELECTRIC INDUSTRIES, LTD.

Electric wires and cables, special metal wires, and powder metallurgical products are the main line. In the production of electric wires and cables, 18% of the country's total is manufactured by this company. This percentage makes Sumitomo Electric first in the field.

Exports are made to Taiwan, Burma, India and other Southeast Asian countries, and also the United States — a constant customer. The P. C. wire made here is finding many satisfied users in the United States. In the atomic energy field, research is being made, recently, in uranium oxide as fuel for nuclear reactors.

NISSIN ELECTRIC Co., LTD.

85% of Power Capacitors now being used in this country are made by Nissin Electric. Its main products are: capacitors & accessories, switchgear & transformers, relays & instruments.

NIPPON ELECTRIC Co., LTD.

The company maintains close relationship with I. S. E. of the United States. It ranks as the foremost manufacturer of telecommunication equipment in Japan. It is the standard-bearer as a manufacturer of quality telephone equipment, and equipment for telecommunication and television systems. It is popularly identified as NEC, the brand name for its products. The company's products are specified and adopted into government programs of many Southeast Asian countries. Therefore, equipment bearing the NEC brand serve as the "eyes and ears" for millions of Asians.

In Japan a great majority of TV transmission and telephone and telecommunication equipment are made by NEC. In the fast-growing and much talked-about electronics industry, it is expected that the scale of Nippon Electric will fast grow into one of international prominence.

NEW NIPPON ELECTRIC Co., LTD.

This is a fully-owned subsidiary of Nippon Electric Co., Ltd. and makes transistors, television sets, radios, tape-recorders, fluorescent lamps, electric refrigerators, etc., and other household appliances in close relationship with the parent company. TV sets and transistor radios bearing the NEC name are becoming increasingly familiar in North and South American countries.

SUMITOMO CHEMICAL Co., LTD.

As a chemical company, Sumitomo Chemical is Japan's biggest. Its products are: chemical fertilizers, industrial chemicals, pharmaceuticals, dyestuffs, agricultural chemicals, aluminum, synthetic resins, etc. In the production of polyethylene, made by the I. C. I. process, its production quantity is approximately 50% of the national total.

SUMITOMO BAKELITE Co., LTD.

Japan's oldest company specializing in the manufacture of synthetic resins, Sumitomo Bakelite's product line includes: phenolic resins, urea resin, melamine resin, vinyl resin, polyethylene pipes, formalin, etc. One of its well-known export items is "Decola" which is a trade-name for melamine-decorative laminated-sheets.

It excels as a hard, and sanitary cover for tables and walls, not to mention its pleasing appeal to the eye.

NIPPON SHEET GLASS Co., LTD.

Every kind of sheet glass for every use — this is the line of Nippon Sheet Glass which can meet a half of Japan's glass requirements. A world-wide building boom is helping it ride along in high fashion.

SUMITOMO FORESTRY Co., LTD.

This company has the dual distinction of being the largest harvester and the largest supplier of timber in this country. It imports timber from the United States and lauan from the Philippines. The lumber is then exported.

SUMITOMO JOINT ELECTRIC POWER Co., LTD.

This company was set up solely for supplying electric power to the bustling Sumitomo companies in the Niihama area on Shikoku Island, Sumitomo's birth-place. Companies which are thus supplied are: Sumitomo Chemical Co., Sumitomo Machinery Co. and Sumitomo Metal Mining Co.

SUMITOMO REAL ESTATE Co., LTD.

The buildings bearing the name of "Sumitomo Building" in Tokyo, Kyoto and Kobe are under the management of this company. The office space is leased to affiliated companies. In addition, the company is engaged in buying, selling, leasing, brokerage and assessment of general real estate.

NIKKEN SEKKEI KOMU Co., LTD. (architects-engineers)

More than 650 experienced and qualified architects, engineers (civil, structural, electrical and mechanical) plus other experts make up this company's staff.

Nikken has carved a prominent niche in the construction world. The designing and construction of "Tokyo Tower" — world's tallest — is one of its recent and highly lauded successes. The Minas Gerais Steel Works in Brazil, now being constructed, is another testimony of Nikken's skill and reputation in plant designing and construction.

THE SUMITOMO WAREHOUSE Co., LTD.

Along with warehouse companies of Mitsui and Mitsubishi interest, Sumitomo enjoys a high ranking in this field. Its total storage space amounts to 187,000 square feet.

THE SUMITOMO BANK, LTD.

THE SUMITOMO TRUST & BANKING Co., LTD.

THE SUMITOMO MUTUAL LIFE INSURANCE Co.

THE SUMITOMO MARINE & FIRE INSURANCE Co., LTD.

In the financial and insurance circles, the above four Sumitomo financial and insurance companies are up among the leaders in their respective field.

SUMITOMO ATOMIC ENERGY RESEARCH INSTITUTE, LTD.

This institute was established in 1957 under the joint-investment of the 14 main Sumitomo-line companies. It is dedicated to research on industrial application of nuclear radiation and also on fuel elements and materials for atomic reactors. A new radio-chemical center is now nearing completion.

SUMITOMO SHOJI KAISHA, LTD.

Sumitomo Shoji Kaisha (literal translation, Sumitomo commercial affairs company) is the one and only trading company of the Sumitomo Group. As general importers and exporters, it keeps in touch with the world market, not only for the benefit of the Group, but for exporting Japan's manufactured products and for importing machinery, foodstuff, raw materials, etc., required for the industries of Japan in general. Its worldwide network of more than 30 offices encircles the globe.

MITSUI BUSSAN KAISHA, LTD.

MITSUI BUSSAN CLAIMS TO BE THE WORLD'S LARGEST TRADING COMPANY.

The name of Mitsui has traditionally been almost synonymous around the world with Japan's foreign trade. It is also a name, as the Encyclopedia Americana notes, which carries a prestige similar to that of Rothschild in the West.

Despite the upheavals of the war, defeat and the subsequent Allied Occupation of Japan, when the old Zaibatsu were ordered to be dissolved, Mitsui Bussan has rebuilt itself up today into Japan's — indeed, the world's — biggest trading company.

Mitsui Bussan was newly reconstituted in February 1959 with the merger of the old Mitsui Bussan and the new Daiichi Bussan which was created after the war.

In the first year of the new Mitsui Bussan's existence, exports handled by Mitsui Bussan during fiscal 1959 amounted to 93,706,915,000 (\$250, 294,000), or just over seven per cent of Japan's entire exports which amounted to \$3,612 million).

During the same year, Mitsui Bussan handled ¥107,165,345,000) worth of imports, or more than 7.5 per cent of Japan's total import trade, which amounted to \$3,940 million.

Just over 51 per cent of its business was done during the year within Japan. The value of these domestic transactions amounted to ¥221,798,032,000 (\$616,105,000).

About two per cent of Mitsui Bussan's transactions during the year were between third countries — transactions done outside the medium of the Japanese market. These amounted to ¥8,249,912,000 (\$22,916,000).

These transactions together amount to more than ¥500,000 million (\$1,400 million).

They cover practically every conceivable product required or produced by Japan's vast complex of industries, from giant electrical generators and other heavy machinery to transistor radios and canned fish and other Japanese delicacies.

Mitsui Bussan's import and export list, in fact, covers more than 5,000 commodities. The pattern of Mitsui Bussan's business shows the picture of Japan's commercial life as a whole. Much of its import list consists of the raw materials, from iron ore to potash salts and raw sugar, needed to feed Japan's ever-expanding industries. And its exports consist of the finished goods produced in Japan's factories and plants from these raw materials.

An important feature of Mitsui Bussan's operations is its concept of "beginning-to-end" service. Mitsui keeps a watchful eye on the suppliers from which it buys, supervising quality from start to finish.

Abroad, Mitsui Bussan maintains its own offices and has affiliated companies in 71 centers of world trade.

Through these offices, overseas importers and exporters can obtain quick and efficient action in reply to any inquiries, and by being able to make these inquiries first-hand through an on-the-spot agency, they are saved the expense of costly cable and overseas telephone calls.

Through its "beginning-to-end" service, Mitsui Bussan not only ensures maximum quality of the goods it handles, but also finds sellers and sets up distribution channels.

Mitsui Bussan also takes care of the potential hazards of production schedules and delivery dates. In some cases, it even gives financial assistance to a manufacture in Japan if this is required in order to meet a production deadline or to overcome some emergency.

Mitsui further handles such matters as inspection and documentation, packing and shipping, customs and insurance.

It will also help clients in other countries to select licensees, or provide market data for its clients' sales.

To conduct its vast operation around the world, Mitsui Bussan maintains more than 5,500 employees on its payroll, as well as 426 foreign employees in its offices overseas.

At home, the company has offices in 41 cities. In the majority of the 71 centers abroad where Mitsui Bussan is represented, the company has its own branch offices and resident representatives. This is the case, for example, in India, where Mitsui Bussan has its own offices in New Delhi, Calcutta and Bombay.

Besides these, Mitsui Bussan also owns and operates 13 subsidiary companies in Canada, Mexico, Brazil, Argentina, West Germany, France, Australia, Thailand, and Vietnam. Although they are separately organized for legal and other reasons, they form

an integral part of Mitsui Bussan's elaborate overseas network.

Handling as it does the products covering practically the entire field of Japan's foreign trade, Mitsui Bussan maintains close business affiliations with more than 300 manufacturers in Japan and has agency contracts or similar agreements with more than 70 well-known companies overseas, including the Metal Corporation of India and major British and U. S. firms.

Mitsui Bussan stands solidly at the heart of the elaborate Mitsui industrial, financial and commercial "family" of companies. As such, it maintains the energy, pride and dynamism that made the Mitsui name famous all over the world and that helped to make Japan one of the world's great industrial and trading nations.

MITSUI LINE SHIPS SAIL THE SEVEN SEAS

At the end of the war, most of Japan's once-proud mercantile fleet lay at the bottom of the sea. But today the flag of the Mitsui Steamship Company once again flies over the seven seas.

Mitsui Steamship Company now has a fleet of cargo carriers totalling 1,029,000 deadweight tons, making Mitsui the biggest steamship company in Japan today.

The tonnage operated by Mitsui represents 13 per cent of Japan total mercantile tonnage of 7,874,000 deadweight tons.

The Mitsui Line fleet now consists of 510 liners and 420 trampers operating on overseas routes and 99 ships operating on coastal routes around Japan.

The achievement in building up this fleet of 1,029 ships may be appreciated when it is recalled that at the end of the war, the Mitsui Line had only one ocean going ship, the Arimasan Maru. Otherwise it had only 17 old and worn-out coastal vessels aggregating 57,000 deadweight tons.

During the war no less than 70 Mitsui ships aggregating 493,000 deadweight tons were lost in the Pacific and adjoining waters.

The Mitsui Steamship Company, then, like other Japanese shipping companies, had to rebuild itself from practically nothing after the war.

No less than 92 per cent of its fleet today, which includes such proud vessels as the 32,728-deadweight-ton tanker Ohminesan Maru, was built after the war.

As of August 1959, Mitsui owned 33 ships, including four tankers, and had tow further ships under construction. The remainder of its fleet was on time charter or operated on consignment.

The Mitsui Line now operates on 15 regular routes and 29 tramp service routes. Its regular routes include an eastbound and westbound round-the-world line, the Japan/India Pakistan line, and the Japan/Bay of Bengal line.

Other lines take Mitsui ships to almost every port around the world in all five continents.

The Mitsui Line, which has its headquarters in the Mitsui Main Building in Tokyo, has its own representatives in New York, San Francisco, Los Angeles, Vancouver, Bombay, Calcutta, Colombo, Rangoon, Bangkok, Singapore, Manila, Hongkong and Taipei. It also maintains a branch office in London.

This representation is reinforced by a network of agents in nearly every major port around the world.

The company has a long and distinguished history, dating back to 1876 in the early days of Japan's industrial development when Mitsui Bussan entered the shipping business and operated several colliers in Asian waters.

The company became separate from Mitsui Bussan in 1942, and although continuing to draw strength from its place in the Mitsui "family" of enterprises, it is still a separate and independent firm today.

TOYO RAYON HELPS TO CLOTHE THE WORLD

In a country like Japan where natural resources are few and the land is restricted and over-populated, chemical fibers offer a particularly fertile field of industrial endeavor, liberating men as they do from the restrictions of nature.

It is natural, then, that chemical fibers today account for an important part of Japan's industrial life.

Japan's booming chemical fiber industry is led by the Toyo Rayon Company, which is the country's largest chemical fiber manufacturer and one of the biggest in the world.

Its annual capacity for the production of rayon, nylon and Toray Tetoron — the registered trademark for the company's polyester fiber — amounts to about 100,000 tons a year.

A few statistics will give some indication of the scale of Toyo Rayon's operations.

During 1959, its total sales amounted to about ¥80,000 million (\$220 million). In the same year, Toyo Rayon produced 42,000 tons of rayon, or eleven per cent of Japan's total output.

It also produced 24,000 tons of nylon, or 80 per cent of the country's total output.

Toyo Rayon's output of these and polyester fibers accounted for 15 per cent of Japan's total output of chemical fibers in 1959.

The company was founded in 1926 by Mitsui Bussan. Introducing facilities and techniques from Britain, Germany and Italy, the company quickly grew into one of Japan's most important companies in the field.

Today, Toyo Rayon has seven principal plants, with an eighth now under construction, and about 20,000 employees on its payroll.

About 40 per cent of the rayon and about 30 per cent of the nylon produced by Toyo Rayon now go for export. In 1959, the company exported about \$70 million worth of its products.

In its ceaseless quest for the best, Toyo Rayon in 1951 concluded a license agreement with E. I. du Pont de Nemours and Company of the United States concerning the manufacture of nylon. The company today produces about 70 tons of nylon daily.

In 1957, Toyo Rayon entered a license agreement with Imperial Chemical Industries of Britain for the production of polyester fiber, for which, as mentioned above, Toyo Rayon registered the brand name Toray Tetoron.

Toyo Rayon continues its unceasing endeavors to supply the world with finer, stronger and lovelier fibers.

PEARL KING

AND THIS TOO SHALL PASS WAY—Buddhist Wisdom

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*AS WITH WOMEN, THE BEAUTY OF PEARLS
FADES WITH TIME — K. Mikimoto*

This is the story of a great inventor, a true philosopher, a devoted husband and a genuine follower of the Buddha.

I am not acquainted with pearls and the great cultured pearl industry that the late Kokichi Mikimoto established in Japan but I had the opportunity of spending an hour with him in his Pearl Kingdom and was deeply impressed by his personal culture, his simplicity and his true Buddhist philosophy. During my twenty trips round the world, as a journalist, and later as a Buddhist monk, I met many pioneers of industry in different lands but Henry Ford and K. Mikimoto left undying impressions on me.

Mikimoto, a devout Buddhist, saturated with the true traditions of his religion, had great regard for non-Buddhists too. When a Christian scientist Dr. Frank Baldwin Jewett (who had helped Japan during the occupation) passed away, Mikimoto arranged for a memorial service at the U. S. Army Chapel Centre in Tokyo. General MacArthur took special note of the liberal gesture by the man who worshipped the Buddha and yet arranged a Christian service for a foreign scientist. The General Congratulated Mikimoto on "the unversality of the true scientific spirit which knowing no racial or national barriers, strives unceasingly to advance man's estate".

SHRINE FOR OYSTERS

Mikimoto told me he had great love for Gautama Buddha and he worshipped him each day but he had also set up a shrine in memory of the millions of oysters who had been sacrificed to produce pearls for the beautiful women of the world. It is in keeping with

the Buddhist tradition in Japan, where annual service is held to thank the broken needles and dolls.

HENRY FORD OF JAPAN

When I met the Pearl King, he immediately reminded me of Henry Ford, 'the Auto King' of America. I had enjoyed his hospitality in his kingdom for three days in 1933 and I was immensely impressed by his simplicity, his great culture, his warm hospitality and above all his love for the workers. He told me "All the fruits and vegetables you see around, are for my workers, I am only their trustee, my workers are the happiest, there never has been a strike in my plants.

I felt the same impression when I met the Pearl King and talked to his workers. They told me the profits of the Pearl Kingdom are divided among the employees as bonuses and salary increases. Paid vacations, retirement allowances and all kind of modern facilities are extended to the workers.

Many Japanese industries follow these noble traditions and workers are generally happy and contented.

HIS PHILOSOPHY

Mikimoto told me 'The success of an industry depends on the happiness of workers. My religion (Buddhism) teaches me: If you make others happy, happiness will come back to you, you know the Law of Karma, if the workers are happy, industry prospers, if the workers are unhappy it goes to dogs.

"We don't live for money alone. The more liberally you spend, the greater the returns." Referring to the great crisis in his business, he said, "In a war between countries, you need arms. In a war of business, you need money. In this respect I had no fear. I gathered together as many women divers as I could find. Then I issued the following order: 'From this moment the wages of women divers will be increased 50 per cent. Working hours will be cut 50 per cent. We will burn three times the wood we are now burning to keep the divers warm. Go out and cut wood from any forest you can find. If the owners complain, ask their price and then give them 20 per cent more than they ask.'

"I spent every cent I had saved, but I saved one-fifth of my oysters — 150,000."

SECRET OF HAPPINESS

He was proud to tell me "As a Buddhist I feel true happiness lies in family love. We in India and Japan worship our ancestors because they always guide us, our loved ones are always with us." This, he said, was specially true of his devoted wife, who at the time of her death had told him "I will always be with you. You and I are soul-mates, part of one another."

When he found the first perfect round pearl, his greatest ambition, he went to the temple at Toba and stood in front the grave of his beloved wife and reported in tears that their life ambition had been achieved and he was sure her soul would be happy to hear of his success.

Her parting words rang in his ears "I will always be with you, you and I are soul-mates, part of one another". He felt her comforting presence and burst into tears.

Like Shah Jahan, the famous ruler of India, Mikimoto refused to marry again, though he was only thirty-eight when his beloved wife passed away.

He told me "Three fourth of my success is due to her love and one fourth due to my hardwork and perseverance.

TOUCHING FAREWELL

The touching story of her death has a lesson for all those people who claim to be in love with their wives and yet marry within 72 hours of their death.

Mikimoto had truly high standard of love. At her death bed. Mikimoto in tears, said, he could not live alone when his soul-mate, his very life, was leaving him.

She told him not to cry because she was very proud and happy to have married to the man who loved her and she begged him that he must be brave and think of his ambition to produce the perfect round Pearl. She then smiled and with the name of great Buddha on her lips she passed away, yet he felt her presence in the temple and the family shrine all her life. And he was proud to tell me this fact, "What greater happiness can a man be blessed with," asked the philosopher.

Business took him away often, but after every trip he would kneel before the family shrine and hold her tablet in his hands, talking to it while he caressed it.

In later years, the grown children discovered that the India-ink inscription of her post-mortem Buddhist name on the tablet had been rubbed completely and lovingly away.

How many modern lovers can feel this fragrance of true love?

HIS TEST OF HAPPINESS

His test of happiness was not a T. V. set or jazz but he believed home was the centre of happiness.

One day he was discussing a plan to set up a club for his workers, when some one observed "That is for the rich, not the workers."

Mikimoto replied:

"The workers of Tatoku Island can be the richest people in the world if we care for them properly. A man with a home, a good wife, and a job is the only truly happy one — and therefore a rich one."

They looked at him solemnly, for they knew what he was thinking; but his next words made them smile.

"... Be sure there are plenty of rowboats for the workers to use at night. Perhaps if they go rowing in the moonlight with some of our pretty diving girls, there won't be so many bachelors left among the population of Tatoku."

MAN OF THE MASSES

He was truly a man of the masses continued to travel a great deal during the years that followed, but he made it a point to report to his employees after each trip, meeting them in the new clubhouse and telling of his plans for the future. He also made it a point always to eat his meals with the men who lived in the dormitory. A family spirit soon grew among the people on Tatoku Island. It has been carried on through the generations and his successor, the young president Y. Mikimoto, who is a popular rotarian, is proud of preserving the grand-father's tradition.

He is the idol of his workers. Today the Pearl Industry feeds approximately 120,000 people in Japan. They include pearl cultivators co-operative members, exporters and workers and their families.

MOURNED BY MILLIONS

No wonder the Pearl King was mourned by millions of his people, friends and admirers when he bade goodbye to this world

at the age of 96.

Five thousand messages of Condolence were received by the Mikimoto family. The Emperor and Empress of Japan honoured the great inventor by sending flowers.

Friends from all over the world mourned the passing away of 'The Pearl King', they included a dozen American generals.

EDISON HIS ADMIRER

Edison, the famous inventor was a great admirer of Mikimoto. The report of their historic meeting is thus recorded in 'The Pearl King'*

Mikimoto had taken with him the set of tools used in processing pearls and gave Edison an on-the-spot demonstration of how cultured pearls come to be.

The final gem he produced at the meeting was given Edison as a memento of the occasion.

"This is not a cultured pearl, but a real pearl," Edison said, looking at it carefully. "In the experiments in my laboratory there were two things I could not do. One was make diamonds and the other pearls. For you to produce pearls, which is considered zoologically impossible, is a true wonder of the world."

It was then that Mikimoto replied, "If you are the moon in the world of inventors, I am nothing more than one of the countless stars."

* By Robert Eunson — Charles E. Tuttle Company, Tokyo.

OUR GREETINGS TO INDIA

KOKUBUN IRON WORKS CO., LTD.

Manufacturers of Braiding Machinery

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SHODA IRON WORKS LTD.

Head Office & Factory:

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